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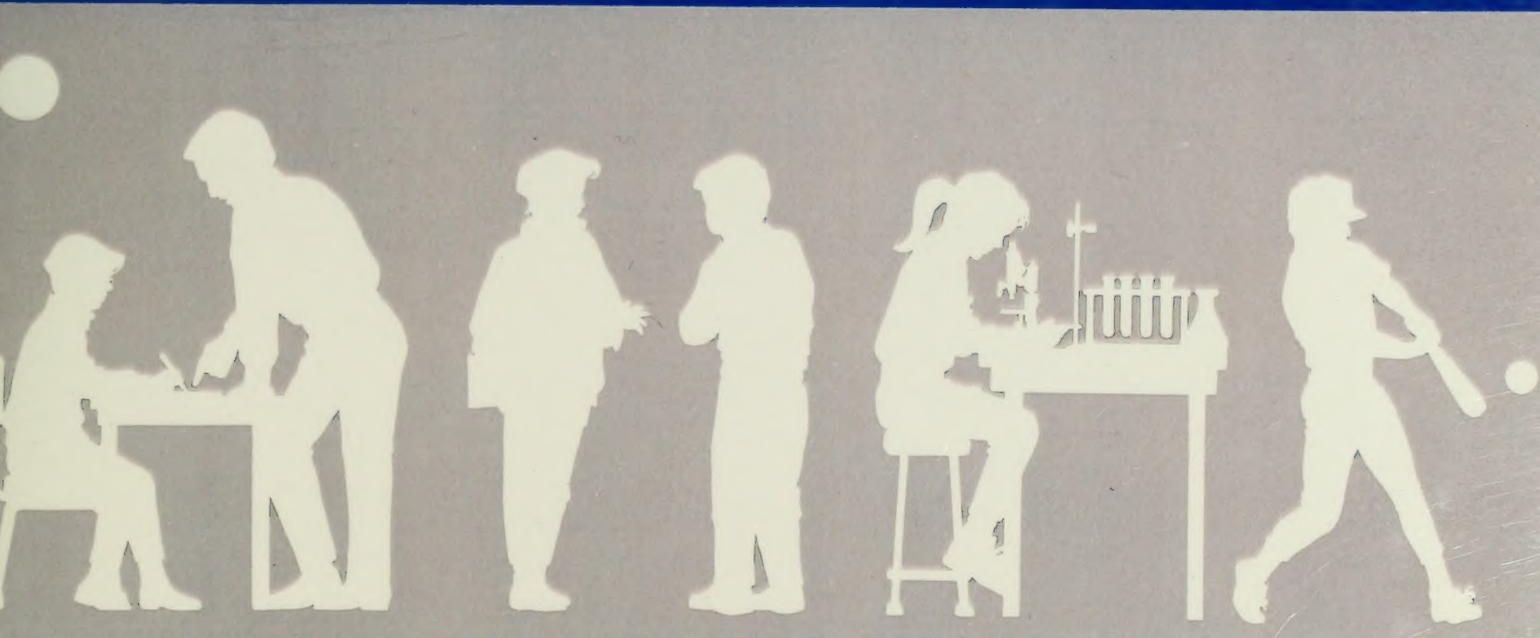
PROGRAM of STUDIES

Junior High Schools



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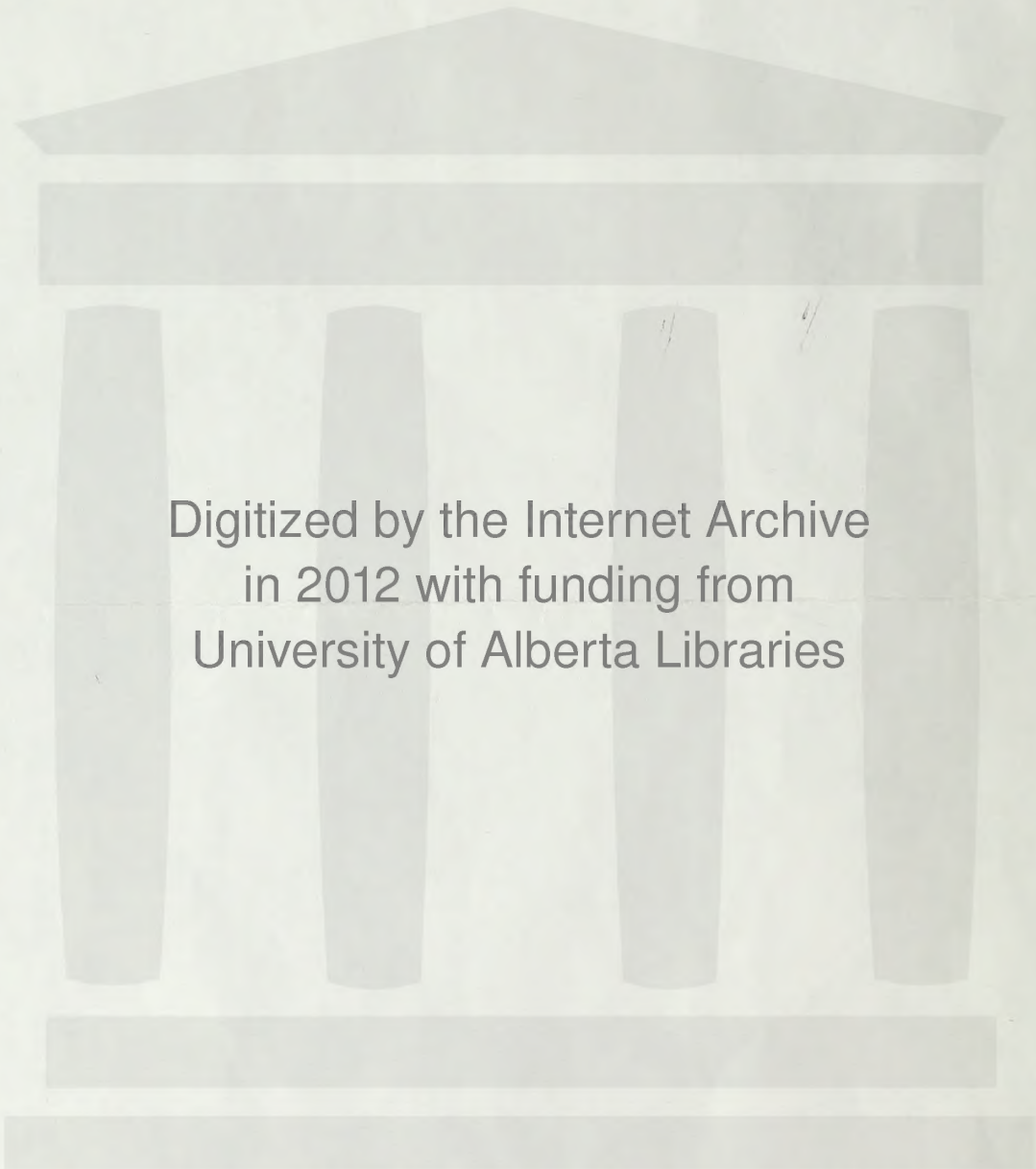

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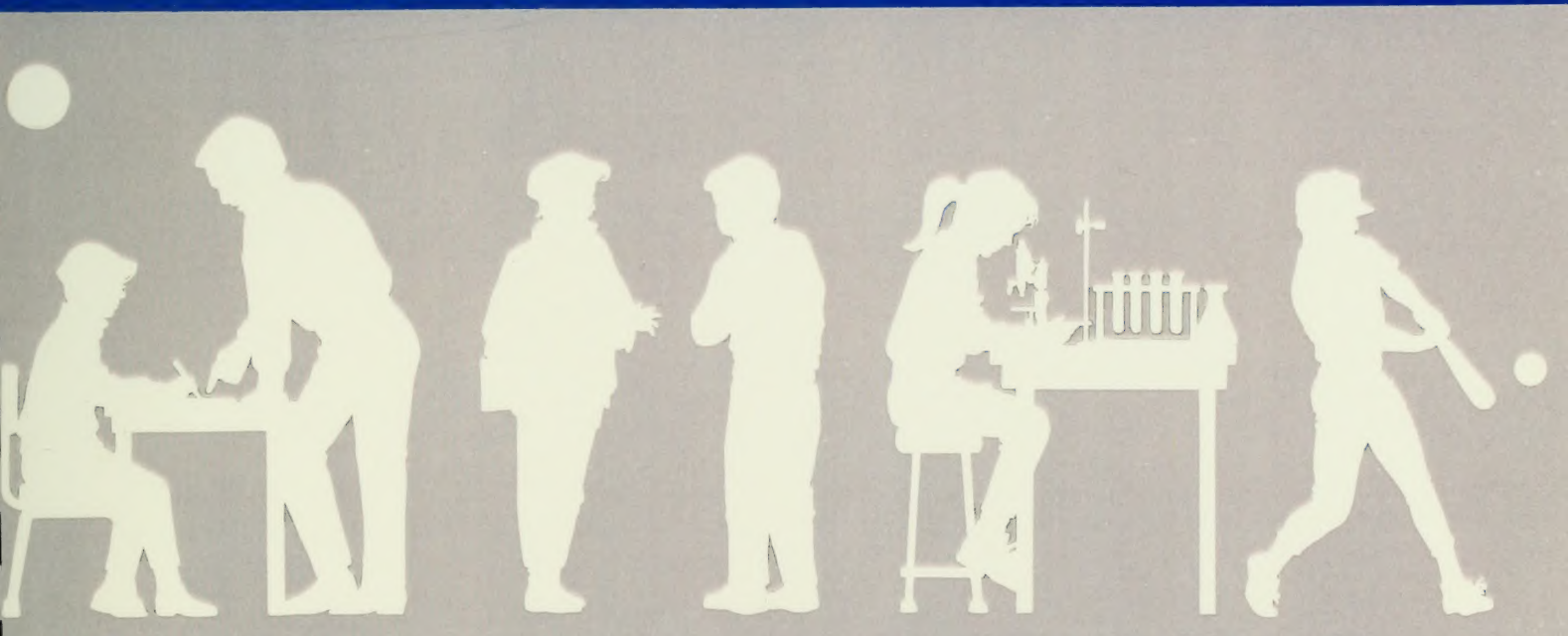
PROGRAM of STUDIES

Junior High Schools



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CAREER AND TECHNOLOGY STUDIES

CONTENTS

Career and Technology Studies [applies to all 22 strands]

Agriculture

Career Transitions

Communication Technology

Community Health

Construction Technologies

Cosmetology Studies

Design Studies

Electro-Technologies

Energy and Mines

Enterprise and Innovation

Fabrication Studies

Financial Management

Foods

Forestry

Information Processing

Legal Studies

Logistics

Management and Marketing

Mechanics

Tourism Studies

Wildlife

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CAREER AND TECHNOLOGY STUDIES

A. PROGRAM RATIONALE AND PHILOSOPHY

Through Career and Technology Studies (CTS), secondary education in Alberta is responding to the many challenges of modern society, helping young people develop daily living skills and nurturing a flexible, well-qualified work force.

In Canada's information society, characterized by rapid change in the social and economic environment, students must be confident in their ability to respond to change and successfully meet the challenges they face in their own personal and work lives. In particular, they make decisions about what they will do when they finish high school. Many students will enter the work force, others will continue their education. All students face the challenges of growing independence and responsibility, and of entering post-secondary programs and/or the highly competitive workplace.

Secondary schools also face challenges. They must deliver, on a consistent basis, high quality, cost-effective programs that students, parents and the community find credible and relevant.

CTS helps schools and students meet these challenges. Schools can respond more efficiently and effectively to student and community needs and expectations by taking advantage of the opportunities in the CTS curriculum to design courses and access school, community and distance learning resources. Students can develop the confidence they need as they move into adult roles by assuming increased responsibility for their learning; cultivating their individual talents, interests and abilities; and by defining and acting on their goals.

As an important component of education in Alberta secondary schools, CTS promotes student achievement by setting clear expectations and recognizing student success. Students in CTS develop competencies—the knowledge, skills and attitudes they are expected to demonstrate, that is, what they know and what they are able to do.

Acquired competencies can be applied now and in the future as students make a smooth transition into adult roles in the family, community, workplace and/or further education. To facilitate this transition, clearly stated expectations and standards have been defined in cooperation with teachers, business and industry representatives and post-secondary educators.

CTS offers all students important learning opportunities. Regardless of the particular area of study chosen, *students* in CTS *will*:

- develop skills that can be applied in their daily lives, now and in the future
- refine career-planning skills
- develop technology-related skills
- enhance employability skills
- apply and reinforce learnings developed in other subject areas.

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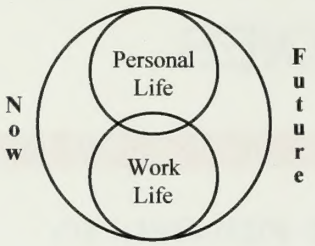
In CTS, students build skills they can apply in their everyday lives. For example, in the CTS program, particularly at the introductory levels, students have the opportunity to improve their ability to make sound consumer decisions and to appreciate environmental and safety precautions.

CAREERS



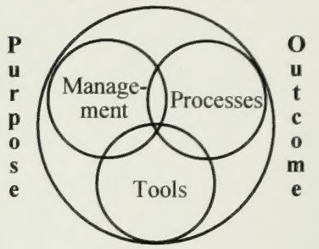
A career encompasses more than activities just related to a person's job or occupation; it involves one's personal life in both local and global contexts; e.g., as a family member, a friend, a community volunteer, a citizen of the world.

The integration of careers throughout the CTS program helps students to make effective career decisions and to target their efforts. CTS students will have the opportunity to expand their knowledge about careers, occupations and job opportunities, as well as the education and/or training requirements involved. Also, students come to recognize the need for lifelong learning.

Students in CTS have the opportunity to use and apply technology and systems effectively and efficiently. This involves:

- a decision regarding which processes and procedures best suit the task at hand
- the appropriate selection and skilled use of the tools and/or resources available
- an assessment of and management of the impact the use of the technology may have on themselves, on others and on the environment.

TECHNOLOGY



Integrated throughout CTS are employability skills, those basic competencies that help students develop their personal management and social skills. Personal management skills are improved as students take increased responsibility for their learning, design innovative solutions to problems and challenges, and manage resources effectively and efficiently. Social skills improve through learning experiences that require students to work effectively with others, demonstrate teamwork and leadership, and maintain high standards in safety and accountability.

As well as honing employability skills, CTS reinforces and enhances learnings developed in core and other optional courses. The curriculum emphasizes, as appropriate, the effective application of communication and numeracy skills.

In addition to the common outcomes described above, students focusing on a particular area of study will develop career-specific competencies that support entry into the workplace and/or related post-secondary programs. Career-specific competencies can involve understanding and applying appropriate terminology, processes and technologies related to a specific career, occupation or job.

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PROGRAM OUTCOMES

The program outcomes describe the basic competencies integrated throughout the CTS program.

Within an applied context relevant to personal goals, aptitudes and abilities; *the student* in CTS *will*:

- demonstrate the basic knowledge, skills and attitudes necessary for achievement and fulfillment in personal life
- develop an action plan that relates personal interests, abilities and aptitudes to career opportunities and requirements
- use technology effectively to link and apply appropriate tools, management and processes to produce a desired outcome
- develop basic competencies (employability skills), by:
  - selecting relevant, goal-related activities, ranking them in order of importance, allocating necessary time, and preparing and following schedules (managing learning)
  - linking theory and practice, using resources, tools, technology and processes responsibly and efficiently (managing resources)
  - applying effective and innovative decision-making and problem-solving strategies in the design, production, marketing and consumption of goods and services (problem solving and innovation)
  - demonstrating appropriate written and verbal skills, such as composition, summarization and presentation (communicating effectively)
  - participating as a team member by working cooperatively with others and contributing to the group with ideas, suggestions and effort (working with others)
  - maintaining high standards of ethics, diligence, attendance and punctuality, following safe procedures consistently, and recognizing and eliminating potential hazards (demonstrating responsibility).

PROGRAM ORGANIZATION

CURRICULUM STRUCTURE

Career and Technology Studies is organized into **strands** and **courses**.

Strands in CTS define competencies that help students:

- build daily living skills
- investigate career options
- use technology (managing, processes, tools) effectively and efficiently
- prepare for entry into the workplace and/or related post-secondary programs.

In general, strands relate to selected industry sectors offering positive occupational opportunities for students. Some occupational opportunities require further education after high school, and some allow direct entry into the workplace. Industry sectors encompass goods-producing industries, such as agriculture, manufacturing and construction; and service-producing industries, such as business, health, finance and insurance.

Courses are the building blocks for each strand. They define what a student is expected to know and be able to do (exit-level *competencies*). Courses also specify prerequisites. Recommendations for course parameters, such as instructional qualifications, facilities and equipment can be found in the guides to implementation.

The competencies a student must demonstrate to achieve success in a course are defined through *general outcomes.* Senior high school students who can demonstrate the general outcomes defined for a CTS course; i.e., who have the designated competencies, will qualify for 1 credit toward their high school diploma.

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Specific outcomes provide a more detailed framework for instruction. Within the context of the general outcomes, the specific outcomes further define the knowledge, skills and attitudes the student should acquire.

The following chart shows the 22 strands that comprise the CTS program and the number of 1-credit courses available in each strand.

Strand	No. of Courses
1. Agriculture	33
2. Career Transitions	31
3. Communication Technology	33
4. Community Health	31
5. Construction Technologies	46
6. Cosmetology Studies	58
7. Design Studies	31
8. Electro-Technologies	37
9. Energy and Mines	26
10. Enterprise and Innovation	8
11. Fabrication Studies	41
12. Fashion Studies	29
13. Financial Management	14
14. Foods	37
15. Forestry	21
16. Information Processing	48
17. Legal Studies	13
18. Logistics	12
19. Management and Marketing	20
20. Mechanics	54
21. Tourism Studies	24
22. Wildlife	17

LEVELS OF ACHIEVEMENT

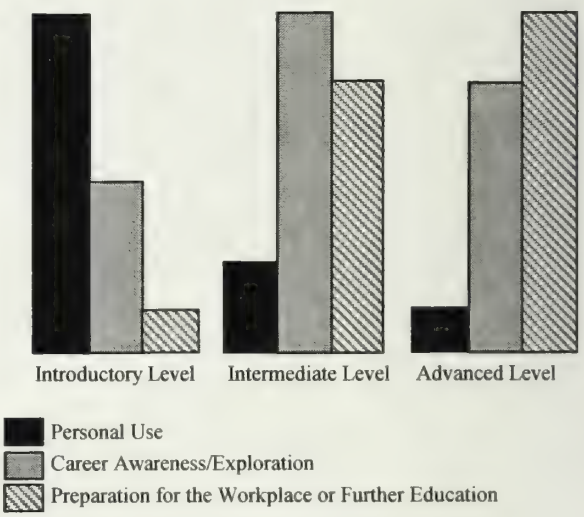
Courses are organized into three levels of achievement: **introductory**, **intermediate** and **advanced**. As students progress through the levels, they will be expected to meet higher standards and demonstrate an increased degree of competence, in both the program outcomes and the general outcomes defined for individual courses.

Introductory level courses help students build daily living skills and form the basis for further learning. Introductory courses are for students who have no previous experience in the strand.

Intermediate level courses build on the competencies developed at the introductory level. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Advanced level courses refine expertise and help prepare students for entry into the workplace or a related post-secondary program.

The graph below illustrates the relative emphasis on the aspects of career planning at each of the levels.



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CURRICULUM AND ASSESSMENT STANDARDS

Curriculum standards in CTS define what students must know and be able to do. Curriculum standards are expressed through the program outcomes for CTS, and through general and specific outcomes defined for individual courses within each strand.

Assessment standards define how student performance is to be judged. In CTS, each assessment standard defines the conditions and criteria to be used for assessing the competencies associated with each general outcome. To receive credit for a course, students must demonstrate competency at the level specified by the conditions and criteria defined for each general outcome.

Students throughout the province receive a fair and reliable assessment as they use the standards to guide their efforts, thus ensuring they participate more effectively and successfully in the learning and assessment process. Standards at advanced levels are, as much as possible, linked to workplace and post-secondary entry-level requirements.

TYPES OF COMPETENCIES

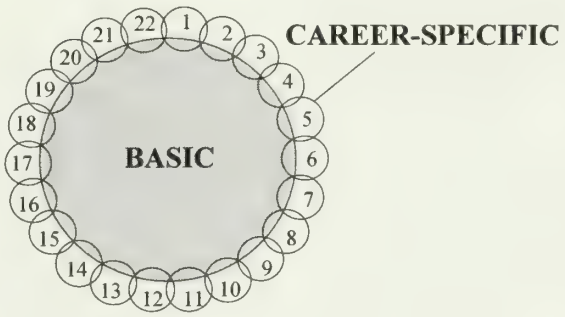
Two types of competencies are defined within the CTS program: basic and career-specific.

Basic competencies are generic to any career area and are developed within each course. Basic competencies include:

- personal management; e.g., managing learning, being innovative, ethics, managing resources
- social; e.g., communication, teamwork, leadership and service, demonstrating responsibility (safety and accountability).

Career-specific competencies relate to a particular strand. These competencies build daily living skills at the introductory levels and support the smooth transition to the workplace and/or post-secondary programs at the intermediate and advanced levels.

The model below shows the relationship of the two types of competencies within the 22 strands of the CTS program.



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BASIC COMPETENCIES REFERENCE GUIDE

The chart below outlines basic competencies that students endeavour to develop and enhance in each of the CTS strands and courses. Students' basic competencies should be assessed through observations involving the student, teacher(s), peers and others as they complete the requirements for each course. In general, there is a progression of task complexity and student initiative as outlined in the Developmental Framework★. **As students progress through Stages 1, 2, 3 and 4 of this reference guide, they build on the competencies gained in earlier stages.** Students leaving high school should set themselves a goal of being able to demonstrate Stage 3 performance.

Suggested strategies for classroom use include:

- having students rate themselves and each other
- using in reflective conversation between teacher and student
- highlighting areas of strength
- tracking growth in various CTS strands
- highlighting areas upon which to focus
- maintaining a student portfolio.

Stage 1— *The student:*	**Stage 2**— *The student:*	**Stage 3**— *The student:*	**Stage 4**— *The student:*
Managing Learning			
☐ comes to class prepared for learning	☐ →	☐ →	☐ →
☐ follows basic instructions, as directed	☐ follows instructions, with limited direction	☐ follows detailed instructions on an independent basis	☐ →
	☐ sets goals and establishes steps to achieve them, with direction	☐ sets clear goals and establishes steps to achieve them	☐ demonstrates self-direction in learning, goal setting and goal achievement
☐ acquires specialized knowledge, skills and attitudes	☐ applies specialized knowledge, skills and attitudes in practical situations	☐ transfers and applies specialized knowledge, skills and attitudes in a variety of situations	☐ transfers and applies learning in new situations; demonstrates commitment to lifelong learning
☐ identifies criteria for evaluating choices and making decisions	☐ identifies and applies a range of effective strategies for solving problems and making decisions	☐ uses a range of critical thinking skills to evaluate situations, solve problems and make decisions	☐ thinks critically and acts logically to evaluate situations, solve problems and make decisions
☐ uses a variety of learning strategies	☐ explores and uses a variety of learning strategies, with limited direction	☐ selects and uses effective learning strategies	☐ →
		☐ cooperates with others in the effective use of learning strategies	☐ provides leadership in the effective use of learning strategies
Managing Resources			
☐ adheres to established timelines; uses time/schedules/planners effectively	☐ creates and adheres to timelines, with limited direction; uses time/schedules/planners effectively	☐ creates and adheres to detailed timelines on an independent basis; prioritizes task; uses time/schedules/planners effectively	☐ creates and adheres to detailed timelines; uses time/schedules/planners effectively; prioritizes tasks on a consistent basis
☐ uses information (material and human resources), as directed	☐ accesses and uses a range of relevant information (material and human resources), with limited direction	☐ accesses a range of information (material and human resources), and recognizes when additional resources are required	☐ uses a wide range of information (material and human resources) in order to support and enhance the basic requirement
☐ uses technology (facilities, equipment, supplies), as directed, to perform a task or provide a service	☐ uses technology (facilities, equipment, supplies), as appropriate, to perform a task or provide a service, with minimal assistance and supervision	☐ selects and uses appropriate technology (facilities, equipment, supplies) to perform a task or provide a service on an independent basis	☐ recognizes the monetary and intrinsic value of managing technology (facilities, equipment, supplies)
☐ maintains, stores and/or disposes of equipment and materials, as directed	☐ maintains, stores and/or disposes of equipment and materials, with limited assistance	☐ maintains, stores and/or disposes of equipment and materials on an independent basis	☐ demonstrates effective techniques for managing facilities, equipment and supplies
Problem Solving and Innovation			
☐ participates in problem solving as a process	☐ identifies the problem and selects an appropriate problem-solving approach, responding appropriately to specified goals and constraints	☐ thinks critically and acts logically in the context of problem solving	☐ identifies and resolves problems efficiently and effectively
☐ learns a range of problem-solving skills and approaches			
☐ practices problem-solving skills by responding appropriately to a clearly defined problem, specified goals and constraints, by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ applies problem-solving skills to a directed or a self-directed activity, by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ transfers problem-solving skills to real-life situations, by generating new possibilities ☐ prepares implementation plans ☐ recognizes risks	☐ identifies and suggests new ideas to get the job done creatively, by: – combining ideas or information in new ways – making connections among seemingly unrelated ideas – seeking out opportunities in an active manner

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Stage 1— *The student:*	**Stage 2**— *The student:*	**Stage 3**— *The student:*	**Stage 4**— *The student:*
Communicating Effectively			
☐ uses communication skills; e.g., reading, writing, illustrating, speaking	☐ communicates thoughts, feelings and ideas to justify or challenge a position, using written, oral and/or visual means	☐ prepares and effectively presents accurate, concise, written, visual and/or oral reports providing reasoned arguments	☐ negotiates effectively, by working toward an agreement that may involve exchanging specific resources or resolving divergent interests
☐ uses language in appropriate context	☐ uses technical language appropriately	☐ encourages, persuades, convinces or otherwise motivates individuals	☐ negotiates and works toward a consensus
☐ listens to understand and learn	☐ listens and responds to understand and learn	☐ listens and responds to understand, learn and teach	☐ listens and responds to understand, learn, teach and evaluate
☐ demonstrates positive interpersonal skills in selected contexts	☐ demonstrates positive interpersonal skills in many contexts	☐ demonstrates positive interpersonal skills in most contexts	☐ promotes positive interpersonal skills among others
Working with Others			
☐ fulfills responsibility in a group project	☐ →	☐ seeks a team approach, as appropriate, based on group needs and benefits; e.g., idea potential, variety of strengths, sharing of workload	☐ leads, where appropriate, mobilizing the group for high performance
☐ works collaboratively in structured situations with peer members	☐ cooperates to achieve group results	☐ works in a team or group: – encourages and supports team members – helps others in a positive manner – provides leadership/ followership as required – negotiates and works toward consensus as required	☐ understands and works within the context of the group
☐ acknowledges the opinions and contributions of others in the group	☐ maintains a balance between speaking, listening and responding in group discussions ☐ respects the feelings and views of others		☐ prepares, validates and implements plans that reveal new possibilities
Demonstrating Responsibility			
Attendance			
☐ demonstrates responsibility in attendance, punctuality and task completion	☐ →	☐ →	☐ →
Safety			
☐ follows personal and environmental health and safety procedures	☐ recognizes and follows personal and environmental health and safety procedures	☐ establishes and follows personal and environmental health and safety procedures	☐ transfers and applies personal and environmental health and safety procedures to a variety of environments and situations
☐ identifies immediate hazards and their impact on self, others and the environment	☐ identifies immediate and potential hazards and their impact on self, others and the environment	☐ →	☐ →
☐ follows appropriate/emergency response procedures	☐ →	☐ →	☐ → ☐ demonstrates accountability for actions taken to address immediate and potential hazards
Ethics			
☐ makes personal judgements about whether or not certain behaviours/actions are right or wrong	☐ assesses how personal judgements affect other peer members and/or family; e.g., home and school	☐ assesses the implications of personal/group actions within the broader community; e.g., workplace	☐ analyzes the implications of personal/group actions within the global context ☐ states and defends a personal code of ethics as required

★**Developmental Framework**			
• *Simple task* • *Structured environment* • *Directed learning*	• *Task with limited variables* • *Less structured environment* • *Limited direction*	• *Task with multiple variables* • *Flexible environment* • *Self-directed learning, seeking assistance as required*	• *Complex task* • *Open environment* • *Self-directed/self-motivated*

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AGRICULTURE

B. STRAND RATIONALE AND PHILOSOPHY

Agriculture is a diverse endeavour involving both rural and urban communities. It affects the quality of life of all Albertans. Agriculture encompasses not only the direct production of primary goods, but also the processing and service industries. It is the second most important area of economic activity in Alberta.★

Growth and development opportunities exist for agriculture products and technologies. The continued strength of Alberta's agriculture industries in domestic and international markets can be ensured through practices that add value to agriculture commodities, and by diversifying products and services to meet consumer needs.

Agriculture involves using our most basic resources: soil, water, plants, animals and people. Concern for the environment provides continuing incentive for new technologies and methods of managing interactions among these resources. Industry practices must ensure the sustainable use of natural resources.

Agriculture, a strand in Career and Technology Studies, provides a comprehensive view of agriculture in Alberta. It encompasses plant and animal production, interior and exterior plantscape, animal husbandry, the agrifood industry, market research and development, and environmental management. Students will develop first-hand knowledge of practices within Alberta's agriculture industries and will apply this knowledge in producing agriculture products and providing related services.

Students in Agriculture will develop the knowledge, skills, attitudes, motivation and commitment to work individually and collectively, as private citizens and members of the work force, toward the conservation and responsible use of water, land, air, forests and wildlife. Within the philosophy of Career and Technology Studies, *students* in Agriculture *will*:

★ *Agriculture in Alberta.* Edmonton, AB: Alberta Agriculture, Food and Rural Development, 1993.

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- develop greater awareness of the economic, environmental and social significance of agriculture in Alberta and the rest of the world, and develop awareness of factors affecting industry decisions
- describe the characteristics of Alberta's agriculture and horticulture industries, and identify resulting products and services
- describe technologies and research programs that support sustainable agriculture systems and that enhance the development of a range of products and services
- translate sustainable development and conservation goals into viable plans for developing and marketing agriculture and horticulture products and services
- develop competencies and behaviours that have broad application to environmental career paths, and specific application to careers within Alberta's agriculture and horticulture industries.

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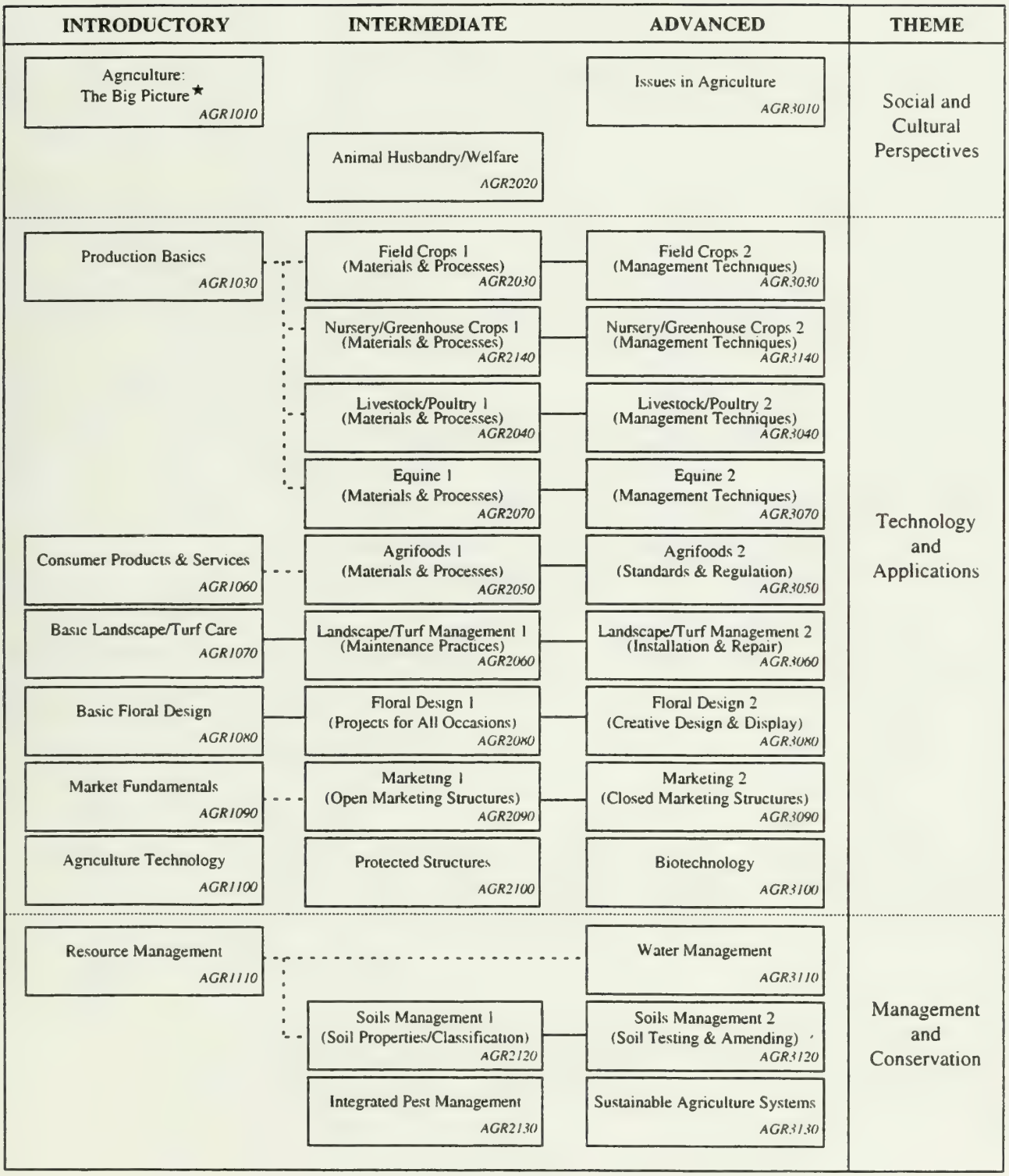
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Agriculture: The Big Picture ★ AGR1010
Issues in Agriculture AGR3010
Social and Cultural Perspectives
Animal Husbandry/Welfare AGR2020
Production Basics AGR1030
Field Crops 1 (Materials & Processes) AGR2030
Field Crops 2 (Management Techniques) AGR3030
Nursery/Greenhouse Crops 1 (Materials & Processes) AGR2140
Nursery/Greenhouse Crops 2 (Management Techniques) AGR3140
Livestock/Poultry 1 (Materials & Processes) AGR2040
Livestock/Poultry 2 (Management Techniques) AGR3040
Equine 1 (Materials & Processes) AGR2070
Equine 2 (Management Techniques) AGR3070
Consumer Products & Services AGR1060
Agrifoods 1 (Materials & Processes) AGR2050
Agrifoods 2 (Standards & Regulation) AGR3050
Basic Landscape/Turf Care AGR1070
Landscape/Turf Management 1 (Maintenance Practices) AGR2060
Landscape/Turf Management 2 (Installation & Repair) AGR3060
Basic Floral Design AGR1080
Floral Design 1 (Projects for All Occasions) AGR2080
Floral Design 2 (Creative Design & Display) AGR3080
Market Fundamentals AGR1090
Marketing 1 (Open Marketing Structures) AGR2090
Marketing 2 (Closed Marketing Structures) AGR3090
Agriculture Technology AGR1100
Protected Structures AGR2100
Biotechnology AGR3100
Technology and Applications
Resource Management AGR1110
Water Management AGR3110
Soils Management 1 (Soil Properties/Classification) AGR2120
Soils Management 2 (Soil Testing & Amending) AGR3120
Integrated Pest Management AGR2130
Sustainable Agriculture Systems AGR3130
Management and Conservation

——— Prerequisite - - - - Recommended sequence

★ Module provides a strong foundation for further learning in this strand.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE AGR1010: AGRICULTURE: THE BIG PICTURE

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students demonstrate knowledge of the diversity and significance of agriculture, and they identify career opportunities within the industry.

Module Learner Expectations: *The student will:*

- describe the diversity of agriculture activity in Alberta, Canada and the global community
- explain the economic, environmental and social significance of agriculture
- identify career opportunities relevant to the agriculture industry
- demonstrate basic competencies.

MODULE AGR1030: PRODUCTION BASICS

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate the basic steps involved in planting, growing and harvesting a plant commodity or in raising, growing and finishing an animal commodity; and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- identify and demonstrate the basic steps and procedures involved in producing a plant or animal commodity
- describe technological systems used within a plant or animal production enterprise
- identify career opportunities relevant to plant or animal production
- demonstrate basic competencies.

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MODULE AGR1060: CONSUMER PRODUCTS & SERVICES

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate the basic steps involved in processing (adding value to) an agriculture commodity and/or in providing related services, and they identify career opportunities in agriculture processing.

Module Learner Expectations: *The student will:*

- explain the basic steps and procedures involved in processing an agriculture commodity and/or in providing a related service
- describe technological systems used to process a plant or animal commodity and/or to provide a related service
- identify career opportunities relevant to processing agriculture or horticulture products and/or to providing related services
- demonstrate basic competencies.

MODULE AGR1070: BASIC LANDSCAPE/TURF CARE

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate knowledge of the techniques used to perform basic landscape and turf care services, focusing attention on plant identification, equipment and supplies and basic maintenance tasks; and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- identify plants suitable for use in Alberta landscapes
- describe equipment and supplies used in performing basic landscape and turf-care services
- demonstrate practical skills in performing basic landscape and turf-care services
- identify career opportunities relevant to landscape and turf maintenance
- demonstrate basic competencies.

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MODULE AGR1080: BASIC FLORAL DESIGN

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate knowledge of the techniques used to construct basic floral designs and arrangements, focusing attention on plant and flower identification, care and handling of fresh cut flowers and foliage, and simple fresh/dried/artificial arrangements; and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- identify and explain the cultural requirements of cut flowers, foliage and interior plants
- demonstrate appropriate care and handling of fresh cut flowers and foliage
- construct simple floral arrangements
- identify career opportunities relevant to the retail florist industry
- demonstrate basic competencies.

MODULE AGR1090: MARKET FUNDAMENTALS

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students explain the basic principles involved in marketing a plant or animal product or service, and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- explain basic principles involved in marketing an agriculture/horticulture commodity, product or service
- explain how agriculture/horticulture markets are expanded and existing products are altered to meet the needs of new markets
- identify career opportunities relevant to marketing an agriculture/ horticulture commodity, product or service
- demonstrate basic competencies.

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MODULE AGR1100: AGRICULTURE TECHNOLOGY

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students describe applications of science and technology within an agriculture or horticulture industry.

Module Learner Expectations: *The student will:*

- explain how science and technology influence the development of agriculture products, methods and services
- describe current applications of science and technology in agriculture production, processing and marketing
- design a simple technological system that addresses a current need in agriculture
- demonstrate basic competencies.

MODULE AGR1110: RESOURCE MANAGEMENT

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students describe the practices used to manage water, soil and land use; and they present the results of research on one or more related issues in agriculture.

Module Learner Expectations: *The student will:*

- describe the nature and extent of Alberta's water resource, and explain practices for managing its use
- describe the nature and characteristics of soil in Alberta, and explain practices for managing its use
- explain different uses of land in rural and urban Alberta and the factors upon which land use decisions are made
- identify alternatives and consequences associated with one or more issues involving water, soil or land use in agriculture
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE AGR2020: ANIMAL HUSBANDRY/WELFARE

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students apply the principles of animal science and health technology in providing care for a domestic animal.

Module Learner Expectations: *The student will:*

- identify and describe indicators of health in a domestic animal and factors that contribute to a healthy animal environment
- demonstrate practical skills in providing care for a domestic animal
- present a rationale and strategy for addressing animal welfare
- demonstrate basic competencies.

MODULE AGR2030: FIELD CROPS 1 (MATERIALS & PROCESSES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students apply knowledge of materials and processes in growing a field crop, focusing attention on plant anatomy and identification, growth requirements, physical structures and equipment and practical production tasks; and they identify related career opportunities. Potential areas of specialization include the production of cereals, forage, oil seeds, pulse crops, mushrooms, spices/herbs, vegetables, fruits, medicinal plants and exotic plants.

Module Learner Expectations: *The student will:*

- identify and describe field crop species suited to Alberta climates
- demonstrate knowledge and safe use of basic equipment used in crop production
- demonstrate practical skills in planting, growing and/or harvesting a field crop
- describe career opportunities relevant to field crop production
- demonstrate basic competencies.

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MODULE AGR2040: LIVESTOCK/POULTRY 1 (MATERIALS & PROCESSES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students apply knowledge of materials and processes in raising livestock, poultry or other animal commodities, focusing attention on anatomy and identification, rations and feeding, housing, animal handling and restraint, animal health and welfare, and care for the young; and they identify related career opportunities. Potential areas of specialization include the production of beef, dairy, poultry, swine, sheep, game, exotics and bees and/or the study of aquaculture.

Module Learner Expectations: *The student will:*

- describe the basic anatomy, physiology and breeds of cattle (beef or dairy), sheep, swine, poultry or specialty animals
- demonstrate practical skills in raising, growing and finishing cattle (beef or dairy), sheep, swine, poultry or specialty animals
- demonstrate appropriate use of basic structures and equipment in animal production
- describe career opportunities relevant to beef, dairy, sheep, swine, poultry or specialty animal production
- demonstrate basic competencies.

MODULE AGR2050: AGRIFOODS 1 (MATERIALS & PROCESSES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate knowledge of materials and processes used in producing an agrifood product or in providing a related service, focusing attention on industry inputs, and processing technologies and practices; and they identify related career opportunities. Potential areas of investigation include dairy, beef, pork, poultry, cereals, oil seeds, sugar beets, wine, fruits/vegetables and honey.

Module Learner Expectations: *The student will:*

- describe the range of input materials, food products and/or related services characteristic of an agrifood industry
- explain technologies and practices used in processing an agriculture food product or in providing a related service
- describe career opportunities relevant to the agrifood industry
- demonstrate basic competencies.

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MODULE AGR2060: LANDSCAPE/TURF MANAGEMENT 1 (MAINTENANCE PRACTICES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: AGR1070 Basic Landscape/Turf Care

Module Description: Students demonstrate the techniques used to provide landscape and turf maintenance services, focusing attention on plant identification, equipment maintenance, effective landscape practices, cost analysis and pricing. Potential areas of specialization include home landscapes, golf courses, recreational fields and parks, institutional/industrial grounds and roadside landscapes.

Module Learner Expectations: *The student will:*

- identify plants suitable for use in Alberta landscapes
- perform routine maintenance and safety checks on equipment used in landscape practices
- demonstrate practical skills in installing and maintaining landscape plants and turfgrass
- explain techniques used to cost landscape and turfgrass services
- demonstrate basic competencies.

MODULE AGR2070: EQUINE 1 (MATERIALS & PROCESSES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate practical skills and approved practices in providing for the daily care of a horse, focusing attention on the origin and history of horses, anatomy and conformation, types and breeds, handling and feeding practices, and basic health care; and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- describe the significance, origin and conformational features of the horse
- identify the types, breeds and characteristics of horses
- demonstrate practical skills and approved procedures for horse handling, feeding and health care
- describe career opportunities relevant to the care, breeding and training of horses
- demonstrate basic competencies.

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MODULE AGR2080: FLORAL DESIGN 1 (PROJECTS FOR ALL OCCASIONS)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: AGR1080 Basic Floral Design

Module Description: Students demonstrate knowledge of the practices involved in providing floral design and interior plantscape services, focusing attention on plant and flower identification, elements and principles of design, floral projects for all occasions, interior plant care and marketing practices.

Module Learner Expectations: *The student will:*

- identify and explain the cultural requirements of cut flowers, foliage and interior plants
- construct fresh, dried and/or artificial floral arrangements
- demonstrate practical skills in maintaining indoor plantscapes
- explain techniques used to cost products within the floral industry
- demonstrate basic competencies.

MODULE AGR2090: MARKETING 1 (OPEN MARKETING STRUCTURES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students apply knowledge of general marketing principles within the context of an agriculture or horticulture industry, focusing attention on materials and services offered to the consumer through open (free enterprise) marketing structures and marketing techniques; and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- develop and present a plan for marketing an agriculture/horticulture commodity, product or service through an open (free enterprise) marketing structure
- describe career opportunities and the range of employment opportunities relevant to marketing an agriculture/horticulture commodity, product or service
- demonstrate basic competencies.

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MODULE AGR2100: PROTECTED STRUCTURES

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students identify essential components of a controlled growing/living environment and demonstrate the techniques used to manage the growing/living environment within a protected enclosure.

Module Learner Expectations: *The student will:*

- identify and explain essential components of controlled growing/living environments
- describe ways in which controlled growing/living environments can be adapted for crop production or livestock housing
- demonstrate techniques used to regulate and manage growing environments within a protected structure
- demonstrate basic competencies.

MODULE AGR2120: SOILS MANAGEMENT 1 (SOIL PROPERTIES/CLASSIFICATION)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students examine soil formation and classification, conduct tests to determine the physical and chemical properties of soils, and they explain the impact of soil properties on productivity.

Module Learner Expectations: *The student will:*

- describe the origin and composition of soils in Western Canada
- identify physical properties of soils, and describe their relationship to soil productivity
- identify chemical properties of soils, and describe their relationship to soil productivity
- demonstrate basic competencies.

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MODULE AGR2130: INTEGRATED PEST MANAGEMENT

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students apply knowledge of biological, cultural and chemical pest-control measures within the context of an agriculture, horticulture or forest industry.

Module Learner Expectations: *The student will:*

- describe the life cycle and ecology of common pests in an agriculture, horticulture or forest industry
- describe biological, cultural and chemical pest-control strategies and basic principles of integrated pest management
- explain legislation and policies regarding the safe handling, storage and use of chemical and biological control agents
- develop and implement an integrated pest management program
- demonstrate basic competencies.

MODULE AGR2140: NURSERY/GREENHOUSE CROPS 1 (MATERIALS & PROCESSES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students apply knowledge of materials and processes in growing a nursery or greenhouse crop, focusing attention on plant anatomy and identification, growth requirements, physical structures and equipment, and practical production tasks; and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- identify and describe nursery or greenhouse plants suited to Alberta climates
- describe hand and power equipment and related supplies used in nursery or greenhouse crop production
- demonstrate practical skills in growing a nursery or greenhouse crop
- describe career opportunities relevant to nursery or greenhouse crop production
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE AGR3010: ISSUES IN AGRICULTURE

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students analyze a range of issues relevant to agriculture and food production, and they develop strategies for dealing with agriculture issues within a global context.

Module Learner Expectations: *The student will:*

- analyze a range of economic, environmental and social issues in agriculture
- compare and contrast issues that involve agriculture in Alberta and Canada with similar issues at a global level
- present a plan of action to address a complex issue in agriculture
- demonstrate basic competencies.

MODULE AGR3030: FIELD CROPS 2 (MANAGEMENT TECHNIQUES)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2030 Field Crops 1 (Materials & Processes)

Module Description: Students demonstrate the techniques used to produce a field crop, focusing attention on industry trends, enterprise selection, genetics and reproduction, and production skills. Potential areas of specialization include the production of cereals, forage, oil seeds, pulse crops, mushrooms, spices/herbs, vegetables, fruits, medicinal plants and exotic plants.

Module Learner Expectations: *The student will:*

- identify trends in the production and use of new varieties of field crops
- describe principles of genetics and reproduction, and explain their application to field crop species
- demonstrate practical skills in producing a field crop
- demonstrate basic competencies.

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MODULE AGR3040: LIVESTOCK/POULTRY 2 (MANAGEMENT TECHNIQUES)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2040 Livestock/Poultry 1 (Materials & Processes)

Module Description: Students demonstrate the techniques used to manage production of livestock, poultry or other animal commodities, focusing attention on industry trends and opportunities, genetics and reproduction, rations and feeding, housing, animal handling and restraint, animal health and welfare, breeding operations and care for the young. Potential areas of specialization include the production of beef, dairy, poultry, swine, sheep, game, exotics and bees and/or the study of aquaculture.

Module Learner Expectations: *The student will:*

- identify industry trends in beef, dairy, sheep, swine, poultry or specialty animal production
- describe principles of genetics and reproduction, and explain their application to cattle (beef or dairy), sheep, swine, poultry or specialty animals
- demonstrate practical skills in raising, growing and finishing cattle (beef or dairy), sheep, swine, poultry or specialty animals
- demonstrate basic competencies.

MODULE AGR3050: AGRIFOODS 2 (STANDARDS & REGULATION)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2050 Agrifoods 1 (Materials & Processes)

Module Description: Students demonstrate the knowledge of techniques used to manage the development of an agrifood product or related service, focusing attention on government regulation and control, economic principles, product quality and safety, environmental impact and industry trends. Potential areas of investigation include dairy, beef, pork, poultry, cereals, oil seeds, sugar beets, wine, fruits/vegetables and honey.

Module Learner Expectations: *The student will:*

- identify government legislation and policies that regulate practices within an agrifood industry
- describe techniques used to manage industry practices, including the application of economic principles, product quality and safety, and environmental impact
- identify industry trends and opportunities for developing new agrifood products
- demonstrate basic competencies.

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MODULE AGR3060: LANDSCAPE/TURF MANAGEMENT 2 (INSTALLATION & REPAIR)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2060 Landscape/Turf Management 1 (Maintenance Practices)

Module Description: Students demonstrate the techniques used to provide landscape and turf management services, focusing attention on plant identification, effective maintenance practices, diagnosis and correction of problems, installation of specialty items, cost analysis and seasonal estimates. Potential areas of specialization include home landscapes, golf courses, recreational fields and parks, institutional/industrial grounds and roadside landscapes.

Module Learner Expectations: *The student will:*

- identify plants suitable for use in Alberta landscapes
- demonstrate practical skills in installing, maintaining and managing landscape plants and turfgrass
- develop and present a plan for the installation of a specialty item and/or system within an Alberta landscape
- estimate the cost of providing seasonal landscape and/or turfgrass services
- demonstrate basic competencies.

MODULE AGR3070: EQUINE 2 (MANAGEMENT TECHNIQUES)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2070 Equine 1 (Materials & Processes)

Module Description: Students demonstrate practical skills and approved practices in providing for the daily care of a horse, focusing attention on the use of physical facilities, procedures for stall cleaning and bedding a horse, guidelines for turnout and shelter, reproductive fundamentals and techniques, and basic horsemanship.

Module Learner Expectations: *The student will:*

- identify factors to consider in selecting a stable and other physical facilities
- demonstrate practical skills and approved procedures for stall cleaning, bedding a horse, turnout and shelter
- describe the reproductive cycle of horses, and describe basic techniques of equine reproduction
- demonstrate approved horsemanship techniques
- demonstrate basic competencies.

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MODULE AGR3080: FLORAL DESIGN 2 (CREATIVE DESIGN & DISPLAY)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2080 Floral Design 1 (Projects for All Occasions)

Module Description: Students demonstrate knowledge of the practices involved in providing creative floral design services, focusing attention on plant and flower identification, more advanced design techniques, floral services for special occasions and promotional displays of floral services offered.

Module Learner Expectations: *The student will:*

- identify and explain the cultural requirements of cut flowers, foliage and interior plants
- construct fresh, dried and/or artificial floral arrangements for special occasions
- calculate the cost and selling price of floral products and services
- demonstrate techniques used to promote products and services within the floral industry
- demonstrate basic competencies.

MODULE AGR3090: MARKETING 2 (CLOSED MARKETING STRUCTURES)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2090 Marketing 1 (Open Marketing Structures)

Module Description: Students explain specialized applications of marketing within closed (supply managed) marketing structures, focusing attention on regulatory agencies/policies that influence the supply of a commodity, product or service.

Module Learner Expectations: *The student will:*

- describe general characteristics and applications of marketing within a closed (supply managed) marketing structure
- assess the benefits and costs of open (free enterprise) and closed (supply managed) marketing systems
- explain factors that affect decisions to produce and market an agriculture commodity within a closed (supply managed) marketing structure
- demonstrate basic competencies.

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MODULE AGR3100: BIOTECHNOLOGY

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Module Description: Students present the results of research on applications of biotechnology in agriculture and food production.

Module Learner Expectations: *The student will:*

- describe the history and development of biotechnology
- identify the benefits and costs associated with applications of biotechnology in agriculture and food production
- explain the processes used to develop a recent biotechnology within Alberta's agriculture industry
- demonstrate basic competencies.

MODULE AGR3110: WATER MANAGEMENT

Level: Advanced

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain principles of water management and establish appropriate water management practices for an agriculture or horticulture enterprise.

Module Learner Expectations: *The student will:*

- describe the hydrologic cycle
- identify water sources important to agriculture in Alberta
- explain how agriculture affects water resources at local and global levels
- identify water quality factors and techniques used to manage water for the benefit of agriculture and the environment
- demonstrate basic competencies.

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MODULE AGR3120: SOILS MANAGEMENT 2 (SOIL TESTING & AMENDING)

Level: Advanced

Theme: Management and Conservation

Prerequisite: AGR2120 Soils Management 1 (Soil Properties/Classification)

Module Description: Students demonstrate knowledge of appropriate soil testing and amending techniques, and they interpret soil survey maps and reports.

Module Learner Expectations: *The student will:*

- select appropriate fertilization techniques based on an analysis of the nutrient requirements of plants
- demonstrate appropriate soil sampling techniques, and interpret soil test reports
- describe the legal location of a parcel of land, using the Western Grid Survey System
- read and interpret soil survey maps and reports
- demonstrate basic competencies.

MODULE AGR3130: SUSTAINABLE AGRICULTURE SYSTEMS

Level: Advanced

Theme: Management and Conservation

Prerequisite: None

Module Description: Students examine the impact of a range of agriculture practices on the environment, and they propose strategies for ensuring the sustainable use of natural resources.

Module Learner Expectations: *The student will:*

- describe the structure and functioning of ecosystems
- explain potential impacts of agriculture systems on the environment
- develop and present strategies for ensuring the sustainable use of natural resources
- demonstrate basic competencies.

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MODULE AGR3140: NURSERY/GREENHOUSE CROPS 2 (MANAGEMENT TECHNIQUES)

Level: Advanced

Theme: Technology and Applications

Prerequisite: AGR2140 Nursery/Greenhouse Crops 1 (Materials & Processes)

Module Description: Students demonstrate techniques used to produce a nursery or greenhouse crop, focusing attention on enterprise selection, plant identification, genetics and reproduction, production skills and venture analysis.

Module Learner Expectations: *The student will:*

- identify and assess opportunities for producing a nursery or greenhouse crop
- identify and describe nursery or greenhouse plants suited to Alberta climates
- demonstrate practical skills in producing a nursery or greenhouse crop
- develop and present a plan for future nursery or greenhouse crop production, based on the outcomes of current production practices
- demonstrate basic competencies.

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CAREER TRANSITIONS

B. STRAND RATIONALE AND PHILOSOPHY

Career Transitions, a strand in Career and Technology Studies, focuses on helping students recognize the relevance of schooling and to make a smooth transition from secondary school to the world of work or to further training and/or education. Key themes include Career Readiness, Leadership, Career Extensions, Career Credentials, Job Safety Skills, Client Service and Career Directions.

Career Transitions has the potential to create meaningful educational experiences for today's high school students. It supports integration across curricular areas and partnerships in which students, schools, businesses and the community can work together toward common goals.

Each Career Transitions course promotes the development of independent thinking and decision-making skills. As well, the courses encourage the abilities and flexibility required to adapt to new situations, including the pursuit of career advancement opportunities and changes in career paths. Career Transitions also helps students recognize the relevance, transferability and applicability of competencies they have developed in other courses and through hobbies, interests or work.

Students participating in Career Transitions are encouraged to set realistic career goals and to increase their motivation to succeed in courses that are related to these goals. Career Transitions helps students determine what employers and others expect of prospective employees, and encourages students to actively work to meet their own and others' expectations. Contact with role models in the work setting can provide accurate information about the training and pretraining requirements of occupations and the availability and use of up-to-date technology.

Within the philosophy of Career and Technology Studies, *students* in Career Transitions *will:*

- analyze the job market and societal trends, and relate them to personal career plans
- explore selected occupations in depth
- demonstrate successful job search, job acquisition and maintenance skills
- understand the concept of job termination
- develop acceptable work habits and positive attitudes toward work
- identify and discuss the expectations and the rights and responsibilities of employers and employees
- recognize and develop a positive attitude toward safety and safe workplace practices

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- identify and understand legislation and regulations that govern employers and employees
- understand the relationships among the individual worker, the employer, organized labour and the government
- recognize and develop leadership and client service skills
- apply leadership and client service theory and skills in a variety of contexts
- explore the relationship between education, training and career advancement
- develop and demonstrate project management skills
- make a smooth transition between schooling and the world of work
- attain externally recognized credentials, where available
- develop a career portfolio, prepare learning/ career plans, including transition scenarios, and establish and implement action plans for strengthening their essential competencies (employability skills) and learning capacity.

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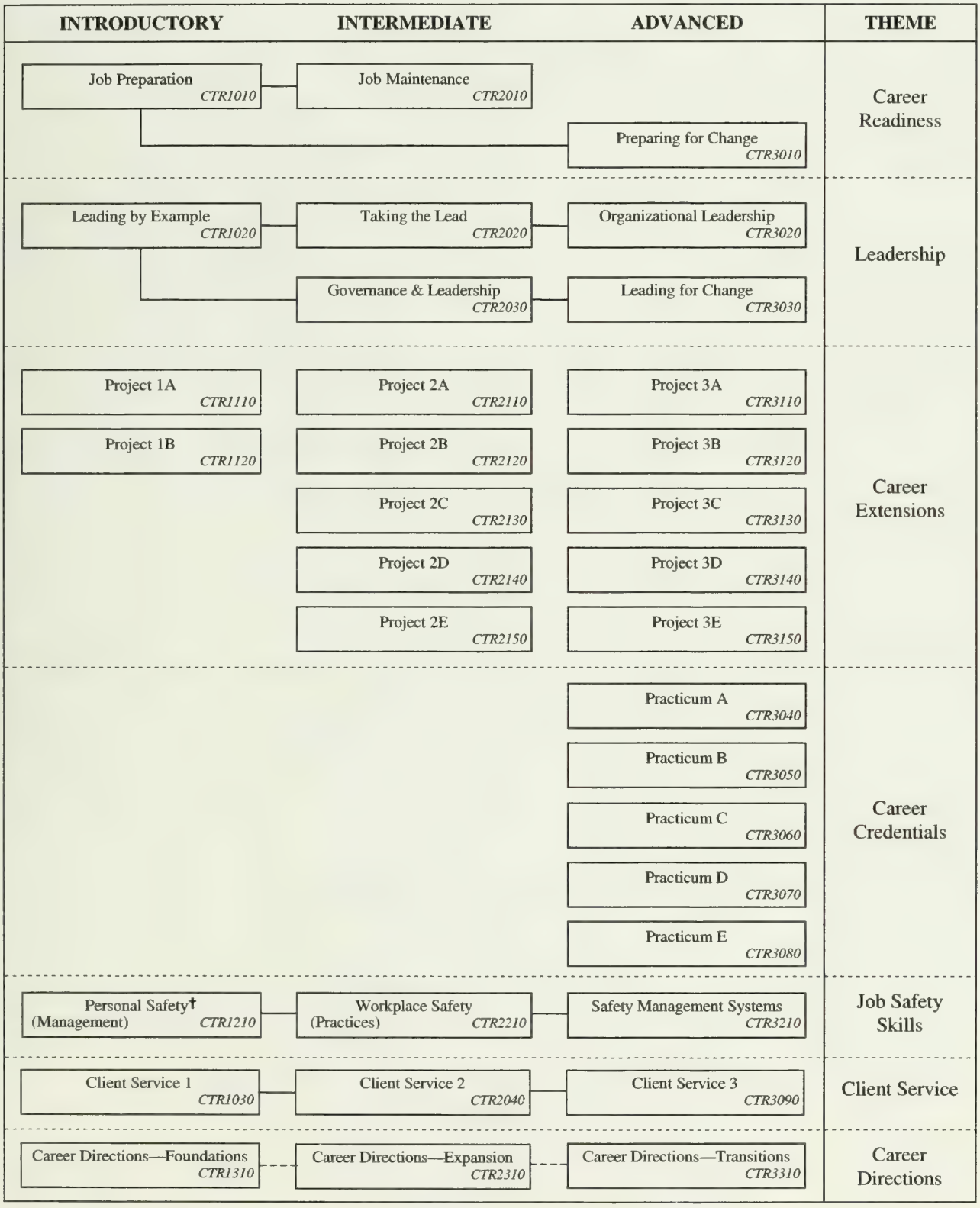
SCOPE AND SEQUENCE



——— Prerequisite ----- Recommended Sequence

† Course is also offered in Community Health.

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE CTR1010: JOB PREPARATION

Level: Introductory

Theme: Career Readiness

Prerequisite: None

Description: Students develop successful employment search skills and a personal employment search portfolio.

General Outcomes: *The student will:*

- identify and develop knowledge, skills and attitudes appropriate for conducting successful employment searches
- communicate in the language in which business is conducted
- prepare a personal employment search portfolio
- use technologies, tools and information systems appropriately for job preparation
- demonstrate basic competencies.

COURSE CTR1020: LEADING BY EXAMPLE

Level: Introductory

Theme: Leadership

Prerequisite: None

Description: Students develop awareness of the principles and practices of leadership and develop, implement and assess a personal leadership plan.

General Outcomes: *The student will:*

- define concepts, terms and practices relating to leadership
- develop a plan to demonstrate leadership by example behaviours
- demonstrate leadership abilities as outlined in the plan
- demonstrate basic competencies.

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COURSE CTR1030: CLIENT SERVICE 1

Level: Introductory

Theme: Client Service

Prerequisite: None

Description: Students are introduced to the principles and practices of client service. The learning acquired through other CTS courses is extended and enhanced, and opportunities are provided for students to apply and to integrate, in real-life contexts, the knowledge, skills and attitudes developed through other courses.

The context of instruction for this course is determined by the other CTS strands to which it is linked.

General Outcomes: *The student will:*

- define "client service" and explain the relationship between "client" and "service"
- identify and describe the scope of client services available to clients
- demonstrate and record basic client services, including:
  - applications of competencies learned in other courses
  - communication skills
  - safety practices
- demonstrate basic competencies.

COURSE CTR1110: PROJECT 1A
COURSE CTR1120: PROJECT 1B

Level: Introductory

Theme: Career Extensions

Prerequisite: None

Description: Students, through projects, extend and enhance competencies developed in the Career Transitions strand or other Career and Technology Studies strands to contexts that are personally relevant.

General Outcomes: *The student will:*

- propose, manage and assess a project
- meet goals as defined within the project plan
- demonstrate basic competencies.

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COURSE CTR1210: PERSONAL SAFETY (MANAGEMENT)

Level: Introductory

Theme: Job Safety Skills

Prerequisite: None

Description: Students develop practical safety-related knowledge, skills and attitudes, and obtain certification in emergency first aid.

General Outcomes: *The student will:*

- identify and describe:
  - health and safety stakeholders
  - legislation relating to health and safety
  - hazards; e.g., in offices
  - careers in safety
- demonstrate basic health and safety practices, including:
  - burn prevention
  - use of personal protective equipment (PPE)
  - back care
- develop and implement a personal health and safety plan
- complete, successfully, a course in emergency first aid (EFA)
- demonstrate basic competencies.

COURSE CTR1310: CAREER DIRECTIONS—FOUNDATIONS

Level: Introductory

Theme: Career Directions

Prerequisite: None

Description: Students build on work done in junior high school to prepare learning/career plans, to develop a career tool kit, and to establish and implement action plans for strengthening essential competencies and learning capacity.

General Outcomes: *The student will:*

- develop a career portfolio, showing evidence of strengths and experiences, including:
  - academic, technical and essential competencies
  - credentials and work experiences
- describe career planning process and principles
- complete learning/career planner and develop personal career network/ resource list

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- prepare a personal career transition scenario—high school plus one year—including:
  - links to personal skills, interests and goals
  - research of selected occupations/industries and learning requirements
- outline and implement action plans to enhance essential competencies and to build learning capacity.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE CTR2010: JOB MAINTENANCE

Level: Intermediate

Theme: Career Readiness

Prerequisite: CTR1010 Job Preparation

Description: Students acquire knowledge about workplace requirements, rights and responsibilities and relate this knowledge to personal career/employment expectations.

General Outcomes: *The student will:*

- identify and develop knowledge, skills and attitudes appropriate to acquiring and maintaining employment
- identify and describe employment support agencies, employment centres and employment legislation
- demonstrate basic competencies.

COURSE CTR2020: TAKING THE LEAD

Level: Intermediate

Theme: Leadership

Prerequisite: CTR1020 Leading by Example

Description: Students compare basic theories and styles of leadership, and demonstrate leadership in a school, workplace or community context.

General Outcomes: *The student will:*

- compare theories and styles of leadership
- demonstrate the ability to lead others
- demonstrate basic competencies.

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COURSE CTR2030: GOVERNANCE & LEADERSHIP

Level: Intermediate

Theme: Leadership

Prerequisite: CTR1020 Leading by Example

Description: Students are introduced to governance, its place within the administrative structure of a school or community, including the roles, responsibilities, practices and procedures for participating in governance and leadership.

General Outcomes: *The student will:*

- describe and explain the purpose of a governance structure
- participate in leadership activities within a school, volunteer agency or a community governance structure
- demonstrate leadership in a governance role
- demonstrate basic competencies.

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COURSE CTR2040: CLIENT SERVICE 2

Level: Intermediate

Theme: Client Service

Prerequisite: CTR1030 Client Service 1

Description: Students expand on the principles and practices of client service previously developed. The learning acquired by students in CTR1030 Client Service 1 is extended and enhanced, and additional opportunities are provided for students to develop client service abilities by applying and integrating, in real-life contexts, the knowledge, skills and attitudes developed through other courses.

The context of instruction for this course is determined by the other CTS strands to which it is linked.

General Outcomes: *The student will:*

- distinguish between client needs and wants and be able to reconcile expressed needs with service needs
- demonstrate and record advanced client services, including:
  - applications of competencies learned in other courses
  - ethical behaviour
  - sales ability
  - quality control
  - marketing
  - client service management
- identify, explain and apply basic quality control principles and practices
- identify, explain and apply basic sales and marketing strategies
- demonstrate basic competencies.

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COURSE CTR2110: PROJECT 2A
COURSE CTR2120: PROJECT 2B
COURSE CTR2130: PROJECT 2C
COURSE CTR2140: PROJECT 2D
COURSE CTR2150: PROJECT 2E

Level: Intermediate

Theme: Career Extensions

Prerequisite: None

Description: Students, through projects, extend and enhance competencies developed in the Career Transitions strand or other Career and Technology Studies strands to contexts that are personally relevant.

General Outcomes: *The student will:*

- propose, manage and assess a project
- meet goals as defined within the project plan
- demonstrate basic competencies.

COURSE CTR2210: WORKPLACE SAFETY (PRACTICES)

Level: Intermediate

Theme: Job Safety Skills

Prerequisite: CTR1210 Personal Safety (Management)

Description: Students explore workplace safety principles and practices, and apply these principles and practices to a variety of contexts.

General Outcomes: *The student will:*

- identify and describe hazard assessments and controls
- classify accidents and incidents and explain causation
- define ergonomics and describe its relationship to workplace safety
- demonstrate and describe standards/legislated practices associated with workplace safety, including:
  - farm/urban safety
  - fire safety
  - electrical safety
  - confined space safety
  - transportation of dangerous goods
- demonstrate basic competencies.

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COURSE CTR2310: CAREER DIRECTIONS—EXPANSION

Level: Intermediate

Theme: Career Directions

Prerequisite: None

Description: Students build on work done in CTR1310: Career Directions—Foundations to update their learning/career plan, to enhance their career tool kit, and to update their action plan for strengthening essential competencies and learning capacity.

General Outcomes: *The student will:*

- refine and present the career portfolio, showing evidence of strengths and competencies, including accomplishments over the past year
- describe the career paths of two individuals working in different occupations in terms of their career planning and transition experiences
- update learning/career planner and expand personal career network/resource list
- prepare two alternative personal career transition scenarios—high school plus five years—including:
  - links to personal competencies, interests and goals
  - research of selected occupations/industries and learning requirements
  - research of present and lifelong learning opportunities
- refine and/or expand action plans to enhance essential competencies and to build learning capacity.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE CTR3010: PREPARING FOR CHANGE

Level: Advanced

Theme: Career Readiness

Prerequisite: CTR1010 Job Preparation

Description: Students develop knowledge and skills relating to the changing labour market, and relate these changes to analyzing and refining personal career plans.

General Outcomes: *The student will:*

- analyze the role of government and labour unions in relation to employers and employees
- gather and analyze appropriate labour market information related to selected occupations and incorporate the findings into a personal career plan
- demonstrate basic competencies.

COURSE CTR3020: ORGANIZATIONAL LEADERSHIP

Level: Advanced

Theme: Leadership

Prerequisite: CTR2020 Taking the Lead

Description: Students develop an understanding of the concept of organizations, and demonstrate leadership by establishing an organization and leading it to achieve a stated goal.

General Outcomes: *The student will:*

- explain the similarities and differences between leadership practices and management practices
- demonstrate leadership by establishing an organization, leading it to achieve a stated goal, and assessing the process and outcome
- demonstrate basic competencies.

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COURSE CTR3030: LEADING FOR CHANGE

Level: Advanced

Theme: Leadership

Prerequisite: CTR2030 Governance & Leadership

Description: Students investigate change and decision-making processes used in the school and/or community. They construct, propose and initiate the use of a project planning model to affect change.

General Outcomes: *The student will:*

- describe the change and decision-making processes used in a governance structure
- identify and record the organizational structures used in a school and in a community
- construct, propose and initiate the use of a project planning model
- demonstrate basic competencies.

COURSE CTR3040: PRACTICUM A
COURSE CTR3050: PRACTICUM B
COURSE CTR3060: PRACTICUM C
COURSE CTR3070: PRACTICUM D
COURSE CTR3080: PRACTICUM E

Level: Advanced

Theme: Career Credentials

Prerequisite: None

Description: Students, on the worksite, continue to develop and refine those competencies developed in related Career and Technology Studies courses, previous practicums and other experiences.

General Outcomes: *The student will:*

- perform assigned tasks and responsibilities efficiently and effectively as required by the credentialling agency
- analyze personal performance in relation to established standards
- demonstrate basic competencies.

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COURSE CTR3090: CLIENT SERVICE 3

Level: Advanced

Theme: Client Service

Prerequisite: CTR2040 Client Service 2

Description: Students build on the principles and practices of client service acquired in CTR2040 Client Service 2. Additional opportunities are provided for students to apply and to integrate, in real-life contexts, the knowledge, skills and attitudes developed through other courses.

The context of instruction for this course is determined by the other CTS strands to which it is linked.

General Outcomes: *The student will:*

- demonstrate and record professional client services, including:
  - applications of competencies learned in other courses
  - ethical behaviour
  - client service enhancement strategies
- demonstrate advanced quality control and marketing strategies
- manage client services
- demonstrate basic competencies.

COURSE CTR3110: PROJECT 3A
COURSE CTR3120: PROJECT 3B
COURSE CTR3130: PROJECT 3C
COURSE CTR3140: PROJECT 3D
COURSE CTR3150: PROJECT 3E

Level: Advanced

Theme: Career Extensions

Prerequisite: None

Description: Students, through projects, extend and enhance competencies developed in the Career Transitions strand or other Career and Technology Studies strands to contexts that are personally relevant.

General Outcomes: *The student will:*

- propose, manage and assess a project
- meet goals as defined within the project plan
- demonstrate basic competencies.

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COURSE CTR3210: SAFETY MANAGEMENT SYSTEMS

Level: Advanced

Theme: Job Safety Skills

Prerequisite: CTR2210 Workplace Safety (Practices)

Description: Students conduct an in-depth investigation of safety management systems and demonstrate the ability to design a safety program for a selected business/industry.

General Outcomes: *The student will:*

- define "loss control" and describe "loss control" practices in a selected business/industry
- design a safety program for a selected business/industry, and specify safety management practices, standards and documentation requirements/ procedures
- gather and analyze accident/incident information, identify causation and recommend preventive measures
- demonstrate basic competencies.

COURSE CTR3310: CAREER DIRECTIONS—TRANSITIONS

Level: Advanced

Theme: Career Directions

Prerequisite: None

Description: Students build on work done in CTR2310: Career Directions—Expansion to update their learning/career plan, and to ensure their career tool kit can support them as they make the transition from high school into the workplace or post-secondary learning.

General Outcomes: *The student will:*

- refine and present the career portfolio targeting specific applications related to personal career plans
- describe the career paths of two individuals working in different industry sectors in terms of their career planning and transition experiences
- update learning/career planner and expand personal career network/resource list
- update and assess personal career transition scenarios, including:
  - links to personal competencies, interests and goals
  - career planning process and principles
  - expectations and opportunities (potential career paths)
  - labour market and workplace trends
- refine and/or expand action plans to enhance essential competencies and to build learning capacity.

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COMMUNICATION TECHNOLOGY

B. STRAND RATIONALE AND PHILOSOPHY

In an information society characterized by rapid change in the social, economic and technological environments, students must be prepared to use information and technology effectively and efficiently. Communication Technology, a strand in Career and Technology Studies, helps students develop a broad awareness of the impact that presentation and communication, print, photography, and media design and application make in every aspect of their lives.

The knowledge and skills acquired from studying Communication Technology are transferable throughout the core and optional curricula, giving students an edge in presenting their views and ideas, in understanding others and in completing projects.

For example, a student may no longer be restricted to doing an essay or preparing a written report as part of a course requirement. Instead, the student may use any combination of Communication Technology skills to complete an assignment. On a more personal level, the student may apply these skills in everyday activities.

Finally, as the communications industry becomes more and more sophisticated, and as the merging of the different communication technologies continues to evolve, it is imperative that students improve their level of media and technological literacy in order to cope with their daily chores.

Students need to broaden their horizons to include the latest digital technology as it applies to print, photography, animation, and audio and video production, whether they intend to apply these skills professionally or for their personal use. Communication skills are necessary for the pursuit of a successful career in any field, and communicating effectively using a variety of media gives students an advantage as they enter the information age of the 21st century.

Within the philosophy of Career and Technology Studies, *students* in Communication Technology *will*:

- develop the basic knowledge, skills and attitudes necessary for exploration and pursuit of further training for a career in the communication technology field
- demonstrate an understanding of the various sectors of the industry and of their own potential with respect to job opportunities
- learn how to function in a productive team environment and how to develop individual competence in a creative and imaginative way
- develop a positive self-concept and realistic life goals through exploring personal interests and aptitudes

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- develop the ability to function as media and technologically literate citizens, and understand not only the technological factors, but also the social, cultural and global issues that affect the various communication media

- develop expertise in applying creative thinking and enterprising/innovative strategies to problem solving

- develop an appreciation for environmental, safety and ethical issues related to communication technology

- develop an appreciation for local, regional and global contribution to communication technology

- develop a positive attitude toward work ethics, productivity and time management.

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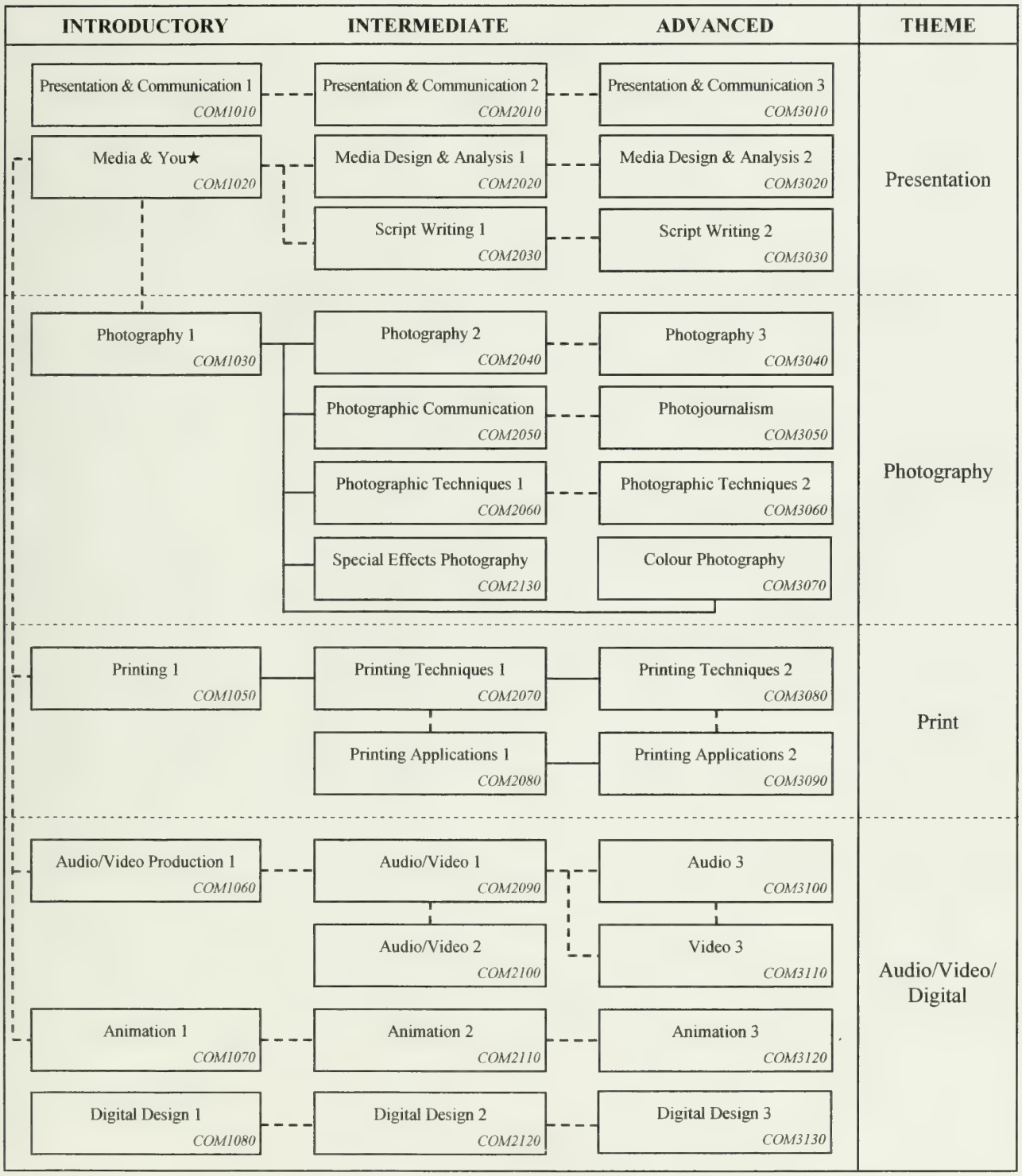
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

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COURSE COM1010: PRESENTATION & COMMUNICATION 1

Level: Introductory

Theme: Presentation

Prerequisite: None

Description: Students communicate information and ideas through the use of speech, body language and meaningful text, graphics, audio, video and/or animation.

General Outcomes: *The student will:*

- describe the basic steps in the presentation process
- apply knowledge of the presentation process to communicate information and ideas
- demonstrate effective integration of one or more communication technologies in the presentation process; e.g., text, graphics, audio, video, animation
- evaluate presentations made by self and others, based on steps in the presentation process and effective technology integration
- demonstrate basic competencies.

COURSE COM1020: MEDIA & YOU

Level: Introductory

Theme: Presentation

Prerequisite: None

Description: Students are provided with a hands-on introduction to the various segments of communication studies: presentation and communication, photography, print, and audio/video production.

General Outcomes: *The student will:*

- identify and describe current media and materials
- use photographic, print and audio/video equipment to communicate ideas and information
- prepare and deliver a presentation
- demonstrate basic competencies.

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COURSE COM1030: PHOTOGRAPHY 1

Level: Introductory

Theme: Photography

Prerequisite: None

Description: Students operate a camera to take photographs and produce prints.

General Outcomes: *The student will:*

- use various photographic equipment, materials and processes to demonstrate basic photographic skills
- describe and/or use various processing methods; e.g., black and white, colour, digital
- describe the role of photography in society
- demonstrate basic competencies.

COURSE COM1050: PRINTING 1

Level: Introductory

Theme: Print

Prerequisite: None

Description: Students are introduced to basic layout/design techniques and to various print reproduction processes; e.g., offset, screen, electrostatic.

General Outcomes: *The student will:*

- identify the fundamental characteristics and applications of type, paper and ink
- produce a design/layout
- apply printing techniques in the production of print/graphic projects
- demonstrate basic competencies.

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COURSE COM1060: AUDIO/VIDEO PRODUCTION 1

Level: Introductory

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students acquire basic production skills through the use of simple audio and/or video equipment and techniques.

General Outcomes: *The student will:*

- identify basic audio and video equipment, and demonstrate fundamental set-up procedures
- identify and demonstrate basic audio and video concepts; e.g., camera moves, types of shots, audio mixing, audio set-up
- apply basic project planning skills to audio/video productions
- apply scripting, sound recording, and camera and lighting skills and techniques in completing a production assignment
- demonstrate basic competencies.

COURSE COM1070: ANIMATION 1

Level: Introductory

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students are introduced to a variety of animation techniques and are given the opportunity to produce simple animation.

General Outcomes: *The student will:*

- identify fundamental concepts of the illusion of movement through animation
- identify and describe at least two animation styles
- describe the techniques used in creating the animation styles
- produce short animation assignments
- demonstrate basic competencies.

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COURSE COM1080: DIGITAL DESIGN 1

Level: Introductory

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students are introduced to the integration of various media; e.g., audio, video, photographic, graphic, for the purpose of producing a multimedia message.

General Outcomes: *The student will:*

- identify and describe tools, methods and processes used in digital design
- use specified tools to transfer media elements to and/or from various sources
- design and produce a simple message, using a combination of two or more media
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE COM2010: PRESENTATION & COMMUNICATION 2

Level: Intermediate

Theme: Presentation

Prerequisite: None

Description: Students use verbal and nonverbal communication skills to produce and deliver presentations incorporating a variety of media.

General Outcomes: *The student will:*

- apply the presentation process to specific audiences in more than one context; e.g., interview, news report, commercial, voice-over
- select and use two or more media and technologies to present ideas and information to different audiences
- evaluate presentations made by self and other students
- demonstrate basic competencies.

COURSE COM2020: MEDIA DESIGN & ANALYSIS 1

Level: Intermediate

Theme: Presentation

Prerequisite: None

Description: Students explore various media and examine their impact on personal, community and national interests.

General Outcomes: *The student will:*

- analyze various media messages; e.g., radio, television, photography, print; and describe the impact of the various messages from a personal, community and national perspective
- design and produce simple messages, and communicate them through specified media; e.g., print, audio/video, animation
- demonstrate basic competencies.

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COURSE COM2030: SCRIPT WRITING 1

Level: Intermediate

Theme: Presentation

Prerequisite: None

Description: Students write sample scripts for a variety of media forms.

General Outcomes: *The student will:*

- describe various media scripts and their formats
- identify the characteristics of a good script
- identify and use a script writing process in writing sample scripts for a media format assigned by the teacher
- demonstrate basic competencies.

COURSE COM2040: PHOTOGRAPHY 2

Level: Intermediate

Theme: Photography

Prerequisite: COM1030 Photography 1

Description: Students review and expand on the concepts outlined in COM1030 Photography 1, including composition, exposure, camera operation, image processing, proofing and enlarging.

General Outcomes: *The student will:*

- apply exposure principles and composition guidelines in photography assignments
- demonstrate proficiency in the theory and practice of image processing, proofing, enlarging and print display
- demonstrate basic competencies.

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COURSE COM2050: PHOTOGRAPHIC COMMUNICATION

Level: Intermediate

Theme: Photography

Prerequisite: COM1030 Photography 1

Description: Students use photographic prints, slides or digital images to communicate a message or tell a story.

General Outcomes: *The student will:*

- identify and describe storytelling/storyboarding techniques
- produce photographic prints, slides or digital images to communicate a message or tell a story
- develop the narration, music, sound effects or captions to accompany the images
- demonstrate basic competencies.

COURSE COM2060: PHOTOGRAPHIC TECHNIQUES 1

Level: Intermediate

Theme: Photography

Prerequisite: COM1030 Photography 1

Description: Students expand photographic concepts by using various lenses and applying depth of field in composition.

General Outcomes: *The student will:*

- describe the characteristics of different lenses and their applications
- apply depth-of-field principles to obtain a variety of results in completing photographic assignments
- describe and apply several darkroom and/or digital techniques, including cropping, contrast control, dodging, vignetting and burning in
- demonstrate basic competencies.

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COURSE COM2070: PRINTING TECHNIQUES 1

Level: Intermediate

Theme: Print

Prerequisite: COM1050 Printing 1

Description: Students are introduced to single-register reproductive printing.

General Outcomes: *The student will:*

- prepare visual images for printing by various methods; e.g., offset lithography, serigraphy, relief lock, digital
- prepare various masters; e.g., offset plate, serigraphic stencil, relief lockup, digital master
- print an image in register, using one or more methods
- finish printed material as required; e.g., trim, bind, pad, heat
- demonstrate basic competencies.

COURSE COM2080: PRINTING APPLICATIONS 1

Level: Intermediate

Theme: Print

Prerequisite: None

Description: Students apply the technique of single-register printing to practical situations.

General Outcomes: *The student will:*

- demonstrate practical print-based tasks, using single-register printing, and, by applying previously learned printing techniques:
  - prepare camera-ready copy and masters suitable for the printing task; e.g., offset plate, serigraphic stencil, relief lockup
  - reproduce images in appropriate quantity
  - use finishing techniques as required
- demonstrate basic competencies.

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COURSE COM2090: AUDIO/VIDEO 1

Level: Intermediate

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students expand on basic audio/video production techniques.

Note: This course can focus on audio and/or video concepts.

General Outcomes: *The student will:*

- complete assignments/projects, using audio/video equipment
- develop skill in using production elements; e.g., lighting, sound, effects
- critique audio/video assignments
- demonstrate basic competencies.

COURSE COM2100: AUDIO/VIDEO 2

Level: Intermediate

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students enhance production skills through application of preproduction and post-production techniques.

General Outcomes: *The student will:*

- apply preproduction, production and post-production techniques to complete an audio/video project
- apply production elements; e.g., lighting, sound, to enhance the production
- apply post-production editing techniques
- demonstrate basic competencies.

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COURSE COM2110: ANIMATION 2

Level: Intermediate

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students build skills in planning, idea development and storytelling techniques, and their application through various animation methods.

General Outcomes: *The student will:*

- demonstrate various traditional animation styles, techniques, applications and terminology
- identify and demonstrate principles of animation; e.g., exaggeration, stretch/squash, through project work
- produce a short animation assignment(s) that:
  - develops an idea; e.g., establishes a theme, evokes an emotional response
  - tells a story
- demonstrate basic competencies.

COURSE COM2120: DIGITAL DESIGN 2

Level: Intermediate

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students enhance their abilities to integrate various media for the purpose of producing a multimedia message for a target audience, using the computer as a significant production tool.

General Outcomes: *The student will:*

- design and plan a multimedia message to be communicated to a target audience
- produce and present the message, using two or more media linked through digital technology selected by the student
- evaluate the effectiveness of the message, using an evaluation instrument
- demonstrate basic competencies.

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COURSE COM2130: SPECIAL EFFECTS PHOTOGRAPHY

Level: Intermediate

Theme: Photography

Prerequisite: COM1030 Photography 1

Description: Students are introduced to the creative use of the camera, the darkroom and/or digital techniques, in order to produce various photographic effects.

General Outcomes: *The student will:*

- use the camera shutter and aperture to create basic special effects
- apply darkroom/digital techniques to create different photographic effects
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE COM3010: PRESENTATION & COMMUNICATION 3

Level: Advanced

Theme: Presentation

Prerequisite: None

Description: Students refine presentation skills specific to a target audience.

General Outcomes: *The student will:*

- prepare presentations for "real" audiences in a variety of contexts; e.g., in class, in school, in community
- prepare presentation materials; e.g., overhead transparencies, charts, graphs, radio/television advertisement, for delivery by self or another presenter
- evaluate a variety of presentations:
  - self and/or peer
  - professional and/or commercial
- demonstrate basic competencies.

COURSE COM3020: MEDIA DESIGN & ANALYSIS 2

Level: Advanced

Theme: Presentation

Prerequisite: None

Description: Students use school and/or community resources to produce messages for a target audience to be delivered through two or more media.

General Outcomes: *The student will:*

- identify, select, justify and develop a message for a target audience, using two or more media
- analyze the same message, as delivered through different media
- critique media message/product
- demonstrate basic competencies.

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COURSE COM3030: SCRIPT WRITING 2

Level: Advanced

Theme: Presentation

Prerequisite: None

Description: Students refine script-writing skills by producing scripts for specific media formats.

General Outcomes: *The student will:*

- demonstrate knowledge and skill specific to writing scripts for selected formats
- select a format; e.g., long, short, and write a script in that format for a target audience
- demonstrate basic competencies.

COURSE COM3040: PHOTOGRAPHY 3

Level: Advanced

Theme: Photography

Prerequisite: None

Description: Students apply various light sources, multiple lighting arrangements and metering techniques with an emphasis on flash and studio lighting.

General Outcomes: *The student will:*

- identify and describe different camera and film formats
- use different camera and film formats
- apply the theory and operation of light-metering devices and electronic flash devices in a photographic assignment
- apply studio lighting techniques to a photographic assignment
- demonstrate basic competencies.

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COURSE COM3050: PHOTOJOURNALISM

Level: Advanced

Theme: Photography

Prerequisite: None

Description: Students are introduced to photojournalism.

General Outcomes: *The student will:*

- apply knowledge of composition, lighting, exposure and image processing to photographing specified events
- integrate type and photographs to complete a layout
- identify career options in photojournalism
- demonstrate basic competencies.

COURSE COM3060: PHOTOGRAPHIC TECHNIQUES 2

Level: Advanced

Theme: Photography

Prerequisite: None

Description: Students create special photographic effects through a variety of approaches, including advanced enlarging techniques, high contrast derivations, toning, retouching and print presentation.

General Outcomes: *The student will:*

- use enlarging techniques to achieve a variety of photographic effects
- use retouching techniques to enhance visual quality and/or to achieve different special effects with photographic prints
- alter/convert continuous tone black and white prints through the use of colour and through the use of high contrast materials and techniques
- demonstrate basic competencies.

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COURSE COM3070: COLOUR PHOTOGRAPHY

Level: Advanced

Theme: Photography

Prerequisite: COM1030 Photography 1

Description: Students are introduced to colour photography.

General Outcomes: *The student will:*

- identify and describe the additive and subtractive colour processes
- identify and describe the differences between negative and reversal photographic materials
- expose and process negative and/or reversal films and paper
- critique completed photographs
- demonstrate basic competencies.

COURSE COM3080: PRINTING TECHNIQUES 2

Level: Advanced

Theme: Print

Prerequisite: COM2070 Printing Techniques 1

Description: Students are introduced to multiregister reproductive printing.

General Outcomes: *The student will:*

- prepare visual images for printing in at least two colours
- prepare masters required to print images in at least two colours; e.g., offset plate, serigraphic stencil, relief lockup
- print an image in register
- use finishing techniques, as required
- demonstrate basic competencies.

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COURSE COM3090: PRINTING APPLICATIONS 2

Level: Advanced

Theme: Print

Prerequisite: COM2080 Printing Applications 1

Description: Students apply the technique of multiregister printing to practical situations.

General Outcomes: *The student will:*

- demonstrate a practical print-based task, applying previously learned techniques
- select a suitable printing method, prepare masters suitable for the printing task; e.g., offset plate, serigraphic stencil, relief lockup, and reproduce in required quantity
- print images in register
- use finishing techniques as required
- demonstrate basic competencies.

COURSE COM3100: AUDIO 3

Level: Advanced

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students plan, develop and produce specific audio projects.

General Outcomes: *The student will:*

- apply preproduction, production and post-production techniques and strategies to complete an audio project
- use audio equipment and various sound recording techniques to enhance the production
- demonstrate basic competencies.

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COURSE COM3110: VIDEO 3

Level: Advanced

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students plan, develop and produce specific video projects.

General Outcomes: *The student will:*

- apply preproduction techniques and strategies to produce a video; e.g., prepare a proposal, treatment/script, timeline, shot list, rehearsal schedule
- apply such production elements as lighting, sound, and special effects to the production
- use such post-production techniques/elements as an edit decision list, narration, sound, music, effects or titles to enhance the production
- present the final product to an audience for feedback
- demonstrate basic competencies.

COURSE COM3120: ANIMATION 3

Level: Advanced

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students apply production planning techniques to produce animation that tells a story, communicates an idea or message, or creates a mood or theme. Students select and employ traditional animation techniques for the project work.

General Outcomes: *The student will:*

- prepare for an animation project; e.g., research, story outline, synopsis, resource requirements, timeline
- select and apply animation techniques to communicate story, idea, theme or mood
- demonstrate basic competencies.

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COURSE COM3130: DIGITAL DESIGN 3

Level: Advanced

Theme: Audio/Video/Digital

Prerequisite: None

Description: Students develop and produce multimedia messages within a common theme and for a client who has an identified target audience. Students select and use a variety of media and justify their selection based on the strengths of the media and appropriateness to the task. Digital technology forms a key link in all project work.

General Outcomes: *The student will:*

- identify, select and use relevant digital technology methods and processes for message production
- design, produce and present at least two messages within a theme for a specified client and audience
- combine at least three different media in the production of each message
- justify the selection and use of the media chosen based on strength and appropriateness for message delivery
- devise and use an evaluation tool to determine the effectiveness of message delivery
- demonstrate basic competencies.

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COMMUNITY HEALTH

B. STRAND RATIONALE AND PHILOSOPHY

Although the family continues to be the primary source of support and nurture for individuals, much is changing. Shifts in the economy, social behaviours and expectations, and changes in technology and communication present new challenges to individuals, families and communities.

Life in the 21st century, with emerging medical technologies and new directions in health, will require skills and knowledge that enhance the ability of individuals and families to be effective and productive at home and in the outside world. To meet these challenges, Community Health, a strand in Career and Technology Studies, prepares students for the competencies required to attain and maintain good health and strong families and communities.

The World Health Organization defines health as "a state of physical, mental and social well-being and not merely the absence of disease or infirmity."★ Good health is more than personal wellness and self-discipline. It also involves getting along with others, a personal sense of control, the ability to cope with stress, minimizing health risks, and maintaining meaningful work, a clean, safe environment and maintaining positive relationships with family and friends.

Within the philosophy of Career and Technology Studies, *students* in Community Health *will*:

- develop and use knowledge, skills and attitudes enabling them to assume a responsible and holistic approach to healthy living
- enhance personal, family and community well-being throughout their lifespan, by promoting healthy lifestyles
- develop abilities, confidence and flexibility as they become aware of and prepared for the challenging and rewarding array of career choices in the health care area
- review and assess existing social, physical, economic and cultural conditions affecting the wellness of individuals, families and communities in the world today
- practise and achieve competencies related to the healthy development and care of individuals throughout the lifespan
- become knowledgeable and responsible health consumers

★ *Principles of the World Health Organization.* The World Health Organization, 1947.

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- demonstrate critical thinking skills, responsible decision making, and management skills in dealing with personal and community health care challenges

- demonstrate flexible, cooperative work behaviour and effective communication and leadership skills

- transfer and apply competencies developed in other courses, hobbies, interests, volunteer activities or work

- demonstrate efficient use of technologies and understand how such technologies influence individual and family life, and community health

- become continuous learners throughout their life.

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SCOPE AND SEQUENCE

INTRODUCTORY	INTERMEDIATE	ADVANCED	THEME
Family Dynamics *CMH1010*	Adolescent Health Issues *CMH2010*	Family Issues *CMH3010*	Sociocultural Perspectives
	Community Volunteerism *CMH2030*	Perspectives on Marriage *CMH3140*	
		Parenting *CMH3020*	
		Aging *CMH3030*	
Caring for Children *CMH1040*		Prenatal & Postnatal Care *CMH3040*	Skills for Caring
Child Development *CMH1050*	Day Care 1 *CMH2050*	Day Care 2 *CMH3050*	
Home Care 1 *CMH1060*	Home Care 2 (Personal Care Services) *CMH2060*	Home Care 3 (Special Conditions) *CMH3060*	
	Sensory Challenges *CMH2070*	Challenged Individuals *CMH3070*	
Perspectives on Health *CMH1080*	Respiratory System *CMH2080*	Digestive System *CMH3080*	Health Sciences
	Circulatory System *CMH2090*	Nervous/Endocrine Systems *CMH3090*	
	Musculoskeletal System *CMH2100*	Mental Health *CMH3100*	
	Complementary Therapies *CMH2110*	Advances in Medical Technology *CMH3110*	
Personal Safety (Management)† *CTR1210*	First Aid/CPR *CMH2120*	FirstAid/CPR for Children *CMH3120*	Injury Prevention
	Sports First Aid 1 *CMH2130*	Sports First Aid 2 *CMH3130*	

——— Prerequisite - - - - - Recommended sequence

† Course is also offered in Career Transitions.

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COURSE CMH1010: FAMILY DYNAMICS

Level: Introductory

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students examine family structures, and roles and responsibilities, involved in meeting the demands of today's society. Students study past family and health patterns to determine how such patterns influence family life now and in the future.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- describe historical and contemporary families, and their importance in society as a basic social institution
- demonstrate effective communication skills appropriate for resolving family conflicts
- show a health action plan based upon a summary of past and present health history of an individual
- describe the effect of personal career choices on:
  - self
  - family
  - friends
  - school/community
- demonstrate basic competencies.

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COURSE CMH1040: CARING FOR CHILDREN

Level: Introductory

Theme: Skills for Caring

Prerequisite: None

Description: Students focus on accident prevention, handling emergencies, and the rights and responsibilities of the caregiver (babysitter) and the families.

General Outcomes: *The student will:*

- identify the rights and responsibilities of the babysitter/caregiver, the babysitter's family and the employer
- demonstrate the knowledge and skills required for child care, including:
  - infant caregiving skills
  - food selection and presentation
  - selection of safe and appropriate play activities
  - first-aid skills
- identify appropriate solutions to babysitting problems and emergency situations
- describe personal competencies in providing child care, and show a personal plan of action that will promote effective child care
- demonstrate basic competencies.

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COURSE CMH1050: CHILD DEVELOPMENT

Level: Introductory

Theme: Skills for Caring

Prerequisite: None

Description: Students examine the needs and behaviours of children in various stages of development, and demonstrate management and caregiving skills applicable to each developmental stage. Students identify various community care facilities and observe how different centres meet the needs of the children and family. Students explore their interest in working with young children.

General Outcomes: *The student will:*

- identify the physical, mental and social development of children, ages 0–6, and describe the appropriate care required for each developmental stage
- identify appropriate solutions to child care problems and emergency situations
- identify child-focused community resources, and evaluate the programs based on individual child and family needs
- identify career opportunities related to community child care
- demonstrate basic competencies.

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COURSE CMH1060: HOME CARE 1

Level: Introductory

Theme: Skills for Caring

Prerequisite: None

Description: Students study the roles, rights and responsibilities, communication and management skills necessary to providing home care. To further gain understanding of home care, students study the promotion and maintenance of a healthy integumentary system. Community support resources are identified.

General Outcomes: *The student will:*

- describe the impact on the individual and his or her family when home care is required
- describe the management of home care with respect to:
  - roles, rights and responsibilities of caregivers
  - support resources available
  - importance of providing respite care for the primary caregiver
- identify and describe factors related to promoting and maintaining a healthy integumentary system
- demonstrate procedures for providing effective home care
- demonstrate basic competencies.

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COURSE CMH1080: PERSPECTIVES ON HEALTH

Level: Introductory

Theme: Health Sciences

Prerequisite: None

Description: Students identify the determinants of good health, and examine how these determinants affect personal well-being. Students also discuss the shared roles, rights and responsibilities of health services and the changing trends in health.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- identify determinants of good health and describe how they affect all dimensions of well-being
- describe the physical make-up of the human body
- describe how health involves shared roles, rights and responsibilities between the individual and society
- describe a current health issue that focuses on the changes in health services
- demonstrate basic competencies.

COURSE CTR1210: PERSONAL SAFETY (MANAGEMENT)

Level: Introductory

Theme: Injury Prevention

Prerequisite: None

Description: Students develop practical safety-related knowledge, skills and attitudes, and obtain certification in emergency first aid.

General Outcomes: *The student will:*

- identify and describe:
  - health and safety stakeholders
  - legislation relating to health and safety
  - hazards; e.g., office safety
  - careers in safety
- demonstrate basic health and safety practices, including:
  - burn prevention
  - use of personal protective equipment (PPE)
  - back care
- describe and implement a personal health and safety plan
- complete, successfully, a course in emergency first aid (EFA)
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE CMH2010: ADOLESCENT HEALTH ISSUES

Level: Intermediate

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students explore and examine various health issues that are of interest to modern adolescent teens, and identify community resources available to teenagers.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- compare and contrast contemporary North American adolescents with adolescents of a previous era or a different culture
- identify and describe health issues that affect the well-being of the adolescent
- identify and evaluate community resources that are available for adolescents, and profile a career opportunity in this area
- describe a personal action plan that will promote well-being throughout the lifespan
- demonstrate basic competencies.

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COURSE CMH2030: COMMUNITY VOLUNTEERISM

Level: Intermediate

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students, through exploration and participation, examine and demonstrate the roles of effective community volunteers.

General Outcomes: *The student will:*

- perform, as a volunteer, assigned tasks and responsibilities efficiently and effectively
- describe personal performance as a volunteer
- identify and describe careers related to community volunteerism
- demonstrate basic competencies.

COURSE CMH2050: DAY CARE 1

Level: Intermediate

Theme: Skills for Caring

Prerequisite: None

Description: Students investigate the roles and responsibilities of a child care worker, and develop communication and observation skills. Students also develop skills to assist in the physical, social, emotional and intellectual development of children from birth to age six.

General Outcomes: *The student will:*

- describe the roles and responsibilities of a child care worker
- identify aspects of safety that must be considered in a day care setting
- demonstrate communication and observation skills necessary for effective child care
- identify strategies to promote physical, emotional, social, intellectual and creative development of a child
- describe developmentally appropriate experiences, materials and activities that promote language development
- describe personal competencies in relation to professional day care standards
- demonstrate basic competencies.

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COURSE CMH2060: HOME CARE 2 (PERSONAL CARE SERVICES)

Level: Intermediate

Theme: Skills for Caring

Prerequisite: CMH1060 Home Care 1

Description: Students identify and demonstrate the skills necessary to provide personal care services for individuals with special needs, recognizing the impact on the individual and family members.

General Outcomes: *The student will:*

- identify the basic needs of client, caregiver and the client's family
- demonstrate personal care recording and reporting procedures
- identify a situation and recommend solutions for individuals with special conditions
- describe personal competencies that would influence choosing a career in home care
- demonstrate basic competencies.

COURSE CMH2070: SENSORY CHALLENGES

Level: Intermediate

Theme: Skills for Caring

Prerequisite: None

Description Students examine sensory challenges and the impact on the individual and family dynamics, and identify available community resources and technologies. Students also have an opportunity to study communication skills for sensory challenged individuals.

General Outcomes: *The student will:*

- identify situations and recommend solutions for sensory challenged individuals
- describe a personal action plan that will promote and maintain a healthy sensory system
- demonstrate techniques that assist communication with a sensory challenged individual
- identify career opportunities related to the field of sensory challenges
- demonstrate basic competencies.

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COURSE CMH2080: RESPIRATORY SYSTEM

Level: Intermediate

Theme: Health Sciences

Prerequisite: None

Description: Students study the anatomy, physiology and pathology of the respiratory system to gain an appreciation for practicing a healthy lifestyle, and to acquire the knowledge and skills necessary to deal with respiratory conditions as they affect the individual, family and friends. Students also identify community support resources.

General Outcomes: *The student will:*

- identify and describe the anatomy, physiology, pathology, causes, treatment, prevention, impact and support resources available for selected respiratory conditions
- describe the causes, signs and symptoms, treatment and prevention of respiratory emergencies
- describe a personal action plan that will promote and maintain a healthy respiratory system
- identify career opportunities related to respiratory health
- demonstrate basic competencies.

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COURSE CMH2090: CIRCULATORY SYSTEM

Level: Intermediate

Theme: Health Sciences

Prerequisite: None

Description: Students study the anatomy, physiology and pathology of the circulatory system to gain an appreciation for practicing a healthy lifestyle, and to acquire the knowledge and skills necessary to deal with circulatory conditions as they affect the individual, family and friends. Students also identify community support resources.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- identify and describe the anatomy, physiology, pathology, causes, treatment, prevention, impact and support resources available for selected cardiovascular conditions
- describe the causes, signs and symptoms, treatment and prevention of cardiovascular emergencies
- describe a personal action plan that will promote and maintain a healthy cardiovascular system
- describe an ethical issue related to cardiovascular health
- identify career opportunities related to cardiovascular health
- demonstrate basic competencies.

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COURSE CMH2100: MUSCULOSKELETAL SYSTEM

Level: Intermediate

Theme: Health Sciences

Prerequisite: None

Description: Students study the anatomy, physiology and pathology of the musculoskeletal system to gain an appreciation for practicing a healthy lifestyle, and to acquire the knowledge and skills necessary to deal with musculoskeletal conditions as they affect the individual, family and friends. Students also identify community support resources.

General Outcomes: *The student will:*

- identify and describe the anatomy, physiology, pathology, causes, treatment, prevention, impact and support resources available for selected musculoskeletal conditions
- describe the causes, prevention, signs and symptoms, treatment and prevention of musculoskeletal emergencies
- identify a personal action plan that will promote and maintain healthy muscular and skeletal systems
- identify career opportunities related to the musculoskeletal system
- demonstrate basic competencies.

COURSE CMH2110: COMPLEMENTARY THERAPIES

Level: Intermediate

Theme: Health Sciences

Prerequisite: None

Description: Students examine complementary therapies, their foundations, applications, costs, ethical issues and predictions for the future.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- describe and critique a complementary therapy
- identify career opportunities in complementary therapies
- demonstrate basic competencies.

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COURSE CMH2120: FIRST AID/CPR

Level: Intermediate

Theme: Injury Prevention

Prerequisite: None

Description: Students study first-aid skills, and demonstrate techniques and procedures for dealing with emergency situations.

General Outcomes: *The student will:*

- identify the roles and responsibilities of the first-aider
- identify situations and recommend solutions to life-threatening emergencies
- demonstrate first-aid procedures required in emergency situations
- describe how to meet the physical, emotional, psychological and social needs of all individuals involved in an emergency
- describe a personal action plan to prevent emergency situations and injuries at home, at work and in the community
- demonstrate basic competencies.

COURSE CMH2130: SPORTS FIRST AID 1

Level: Intermediate

Theme: Injury Prevention

Prerequisite: None

Description: Students learn different aspects of sports injuries, first-aid care and prevention of athletic injuries.

General Outcomes: *The student will:*

- describe how the roles and responsibilities of an athletic first-aider help promote and maintain healthy athletes and reduce sports injuries
- identify situations and recommend solutions for common athletic injuries
- develop a game plan and emergency action plan as an athletic first-aider
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE CMH3010: FAMILY ISSUES

Level: Advanced

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students examine changes that occur within a family and the required adjustments family members must make. Cultural diversities are investigated and community resources are identified.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- describe changing rights, responsibilities and family dynamics that occur throughout the family life cycle
- compare and contrast families from diverse cultures
- describe the effect on the physical, mental and social well-being of the family as changes occur in careers, relationships, personal life and financial situations
- identify career choices by compiling a community family support services directory
- demonstrate basic competencies.

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COURSE CMH3020: PARENTING

Level: Advanced

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students examine parenting, current family dynamics and related issues, and enhance potential parenting skills.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- identify and describe different parenting styles, and assess their influence on family dynamics. Consider:
  - authoritarian
  - permissive
  - democratic
  - uninvolved
  - cultural diversities
- identify the rewards and challenges of parenting, including: financial, emotional, societal, educational, health
- describe personal psychological, physical, financial and philosophical readiness for parenting
- identify related career opportunities in parenting
- demonstrate basic competencies.

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COURSE CMH3030: AGING

Level: Advanced

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students gain an understanding of the issues involved with the aging process and the impact of such issues on the individual, the family and the community. Students identify community resources and recognize the importance of seniors as a resource to the community.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- identify the contributions seniors make to society
- identify the physical, economic, emotional and intellectual changes that occur with aging and the adaptations required
- describe a personal action plan to prepare for healthy aging
- describe the signs, symptoms and care required for age-related conditions
- identify various adjustments required as a result of loss
- identify and evaluate community support resources and profile a career related to the aging community
- demonstrate basic competencies.

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COURSE CMH3040: PRENATAL & POSTNATAL CARE

Level: Advanced

Theme: Skills for Caring

Prerequisite: None

Description: Students focus on the impact of pregnancy on physical, mental and social well-being, and understand the significance of prenatal, labour, delivery and postnatal care.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- describe the process of pregnancy, labour, delivery, and the puerperium, and identify both normal changes and complications that may arise in order to assess care measures required
- describe the impact of pregnancy and birth of a child on all members of the family, taking into consideration different maternal ages and different cultures
- identify the importance of lifestyle choices on maternal/fetal health throughout pregnancy and the puerperium
- identify and evaluate community resources and career opportunities in prenatal and postnatal care
- demonstrate basic competencies.

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COURSE CMH3050: DAY CARE 2

Level: Advanced

Theme: Skills for Caring

Prerequisite: CMH2050 Day Care 1
Practicum course from the Career Transitions Strand in a Day Care Centre

Description: Students continue to study the development and care of children, focusing on the importance of play and guiding behaviour.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- describe strategies to encourage a child's creativity
- identify the characteristics of play, recognize its value and understand how it contributes to children's development
- identify what needs to be provided for play in order for children to grow and develop, and to describe the adult role in supporting self-directed play
- describe ways that caregivers carry out routines to enhance a child's development in a safe and nurturing way
- describe methods of solving behaviour problems, using appropriate child guidance techniques
- describe how day care regulations ensure quality day care
- identify practices related to child safety and illness/injury prevention
- describe how day care staff and families can work together in the best interest of the child
- describe types and signs of possible child abuse/neglect, and indicate the day care workers' responsibility
- identify career opportunities related to day care services
- demonstrate basic competencies.

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COURSE CMH3060: HOME CARE 3 (SPECIAL CONDITIONS)

Level: Advanced

Theme: Skills for Caring

Prerequisite: CMH2060 Home Care 2 (Personal Care Services)

Description: Students continue to learn about home care as it relates to special conditions, special treatments, loss, long-term care and the palliative process.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- identify individuals with special needs or conditions, safety requirements, and demonstrate or describe the skills necessary to assist with special care treatments
- describe home care as it relates to loss, long-term care, and the palliative process
- identify career opportunities related to home care/personal care services
- demonstrate basic competencies.

COURSE CMH3070: CHALLENGED INDIVIDUALS

Level: Advanced

Theme: Skills for Caring

Prerequisite: None

Description: Students recognize the diversity of experiences facing individuals who are physically and/or mentally challenged, and identify available community resources for such individuals.

General Outcomes: *The student will:*

- identify situations affecting challenged individuals and recommend solutions
- identify and evaluate community resources and profile a career opportunity related to working with challenged individuals
- demonstrate basic competencies.

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COURSE CMH3080: DIGESTIVE SYSTEM

Level: Advanced

Theme: Health Sciences

Prerequisite: None

Description: Students study the anatomy, physiology, pathology and treatment of the digestive and elimination systems. They gain an appreciation for practicing a healthy lifestyle, and acquire the knowledge and skills necessary to deal with digestive and elimination conditions as they affect the individual, family and friends. Students also identify community support resources.

General Outcomes: *The student will:*

- identify and describe the anatomy, physiology, pathology, causes, treatment, prevention, impact and support resources available for selected digestive and elimination conditions
- describe the causes, signs and symptoms, treatment and prevention of digestive and elimination emergencies
- describe a personal action plan that will promote and maintain healthy digestive and elimination systems
- identify career opportunities related to digestive and elimination systems
- demonstrate basic competencies.

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COURSE CMH3090: NERVOUS/ENDOCRINE SYSTEMS

Level: Advanced

Theme: Health Sciences

Prerequisite: None

Description: Students study the anatomy, physiology and pathology of the nervous/endocrine systems. They gain an appreciation for practicing a healthy lifestyle, and acquire the knowledge and skills necessary to deal with nervous/endocrine conditions as they affect the individual, family and friends. Students also identify community support resources.

General Outcomes: *The student will:*

- identify and describe the anatomy, physiology, pathology, causes, treatment, prevention, impact and support resources available for selected nervous and endocrine conditions
- describe the causes, signs and symptoms, treatment and prevention of neurological and endocrine emergencies
- describe a personal action plan that will promote and maintain healthy nervous and endocrine systems
- identify career opportunities related to nervous and endocrine systems
- demonstrate basic competencies.

COURSE CMH3100: MENTAL HEALTH

Level: Advanced

Theme: Health Sciences

Prerequisite: None

Description: Students study the parameters of mental well-being and the causes, signs, symptoms and treatment of mental illness. Students learn coping skills, and identify community support resources.

General Outcomes: *The student will:*

- describe indicators of mental well-being
- identify common stressors, the body's response to stress, and provide solutions for coping with stress
- identify causes, signs and symptoms, pathology, treatment, prevention, impact and support resources for psychological disorders
- identify career opportunities related to mental health
- demonstrate basic competencies.

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COURSE CMH3110: ADVANCES IN MEDICAL TECHNOLOGY

Level: Advanced

Theme: Health Sciences

Prerequisite: None

Description: Students focus on the social, emotional and economic impact of health technology. Related ethical issues are also examined.

General Outcomes: *The student will:*

- compare and contrast past, present and future trends in health services
- identify services, diagnostic procedures and health technologies available in acute, rehabilitation and extended care centers
- identify and discuss emerging technologies, including description, availability, social and emotional impact, economics and ethical issues
- identify career opportunities related to medical technology
- demonstrate basic competencies.

COURSE CMH3120: FIRST AID/CPR FOR CHILDREN

Level: Advanced

Theme: Injury Prevention

Prerequisite: None

Description: Students identify a child-safe environment and recognize life-threatening emergencies or medical conditions, and demonstrate appropriate first-aid procedures.

General Outcomes: *The student will:*

- identify practices that provide a safe environment for infants and children
- identify signs and symptoms and recommend action for childhood emergencies and suspected child abuse and/or neglect
- identify an emergency situation and demonstrate first-aid/CPR skills for childhood emergencies
- identify career opportunities related to first aid/CPR for children
- demonstrate basic competencies.

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COURSE CMH3130: SPORTS FIRST AID 2

Level: Advanced

Theme: Injury Prevention

Prerequisite: CMH2130 Sports First Aid 1

Description: Students focus on the application of knowledge, skills and techniques to enhance athletic performance, and identify common athletic injuries, therapeutic solutions and rehabilitation strategies.

General Outcomes: *The student will:*

- demonstrate management of resources and activities of an athletic first-aider
- describe activities that enhance athletic performance
- identify situations that precipitate common athletic injuries, and recommend preventive and therapeutic solutions and rehabilitation
- identify career opportunities in sports first aid
- demonstrate basic competencies.

COURSE CMH3140: PERSPECTIVES ON MARRIAGE

Level: Advanced

Theme: Sociocultural Perspectives

Prerequisite: None

Description: Students examine relationships and related issues as they apply to marital relationships, and acquire life skills that will help them now and in the future.

Note: This course includes concepts that may be particularly sensitive to students, parents or community members.

General Outcomes: *The student will:*

- identify factors that affect healthy marriages
- describe legal implications before/during and after marriage
- describe issues that affect marriages today
- describe a personal philosophy on marriage
- describe the resource management skills necessary when planning a marriage ceremony
- demonstrate basic competencies.

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CONSTRUCTION TECHNOLOGIES

B. STRAND RATIONALE AND PHILOSOPHY

The products of construction and manufacturing are a reflection of the needs and wants of society. For centuries, people have built structures and made objects to provide protection from the elements, to make work easier and to make life more enjoyable.

Today, our social and economic well-being is still closely linked to our ability to transform materials into useful products. Therefore, it is important that as students prepare for their futures, they should understand how the construction and manufacturing industries organize themselves and apply technology in productive ways.

In Alberta, the construction and manufacturing sectors of the economy are characterized by relatively small entrepreneurial businesses that make products for domestic and foreign market needs.

In recent years, dramatic changes have occurred in the way buildings and other products have been designed and built. With the aid of new techniques, architects and engineers are now able to simulate and evaluate designs with extreme accuracy. This precision translates into stronger structures, smaller tolerances, less waste and the need for a highly trained and flexible work force.

Construction Technologies, a strand in Career and Technology Studies, has been developed to help meet this educational need. Students selecting modules from this strand have the opportunity to investigate and develop important knowledge, skills and attitudes relative to the design, construction and maintenance of buildings and other related products.

Students are provided with a broad base of relevant theory and practice that builds daily-living and career-specific skills. Successful completion of modules in this strand is intended to provide students with the skills and experience required for entry-level employment or for pursuing post-secondary education. This preparation is accomplished by encouraging students to:

- develop safe work and environmental practices
- develop self and resource management skills
- work with a variety of technologies and technological systems
- communicate and work as effective team members
- develop ethical work habits and relationships
- creatively seek practical solutions to problems

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- develop consumer and life skills
- identify further educational and career opportunities.

Within the philosophy of Career and Technology Studies, *students* in Construction Technologies *will*:

- appreciate the importance of the construction and manufacturing industries in relationship to our personal, social and economic well-being
- demonstrate a working knowledge of materials, tools and processes that are used to create buildings and other related products that meet the needs and wants of society
- apply effective and responsible decision-making skills in the design and construction of buildings and durable goods
- develop positive attitudes toward individual and team work responsibilities, quality production and service
- develop an appreciation for health, safety and environmental issues related to construction and manufacturing
- appreciate the need for legislation and codes that regulate building construction and manufacturing activities
- link, in meaningful and practical ways, the knowledge, skills and attitudes developed in other strands and courses to this strand
- assess personal interests and abilities related to making realistic career choices.

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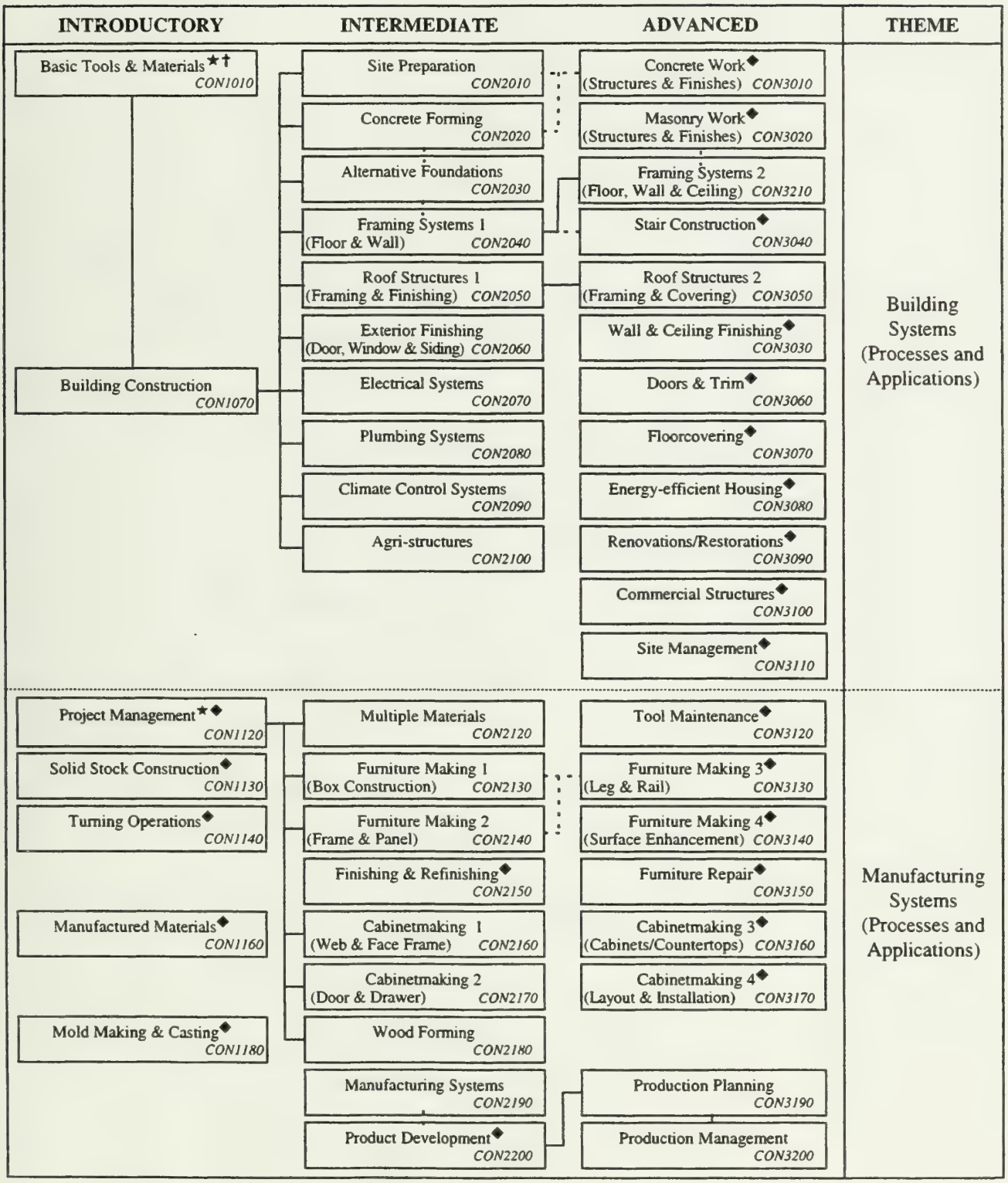
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Basic Tools & Materials ★† CON1010
Building Construction CON1070
Site Preparation CON2010
Concrete Forming CON2020
Alternative Foundations CON2030
Framing Systems 1 (Floor & Wall) CON2040
Roof Structures 1 (Framing & Finishing) CON2050
Exterior Finishing (Door, Window & Siding) CON2060
Electrical Systems CON2070
Plumbing Systems CON2080
Climate Control Systems CON2090
Agri-structures CON2100
Concrete Work ◆ (Structures & Finishes) CON3010
Masonry Work ◆ (Structures & Finishes) CON3020
Framing Systems 2 (Floor, Wall & Ceiling) CON3210
Stair Construction ◆ CON3040
Roof Structures 2 (Framing & Covering) CON3050
Wall & Ceiling Finishing ◆ CON3030
Doors & Trim ◆ CON3060
Floorcovering ◆ CON3070
Energy-efficient Housing ◆ CON3080
Renovations/Restorations ◆ CON3090
Commercial Structures ◆ CON3100
Site Management ◆ CON3110
Building Systems (Processes and Applications)
Project Management ★◆ CON1120
Solid Stock Construction ◆ CON1130
Turning Operations ◆ CON1140
Manufactured Materials ◆ CON1160
Mold Making & Casting ◆ CON1180
Multiple Materials CON2120
Furniture Making 1 (Box Construction) CON2130
Furniture Making 2 (Frame & Panel) CON2140
Finishing & Refinishing ◆ CON2150
Cabinetmaking 1 (Web & Face Frame) CON2160
Cabinetmaking 2 (Door & Drawer) CON2170
Wood Forming CON2180
Manufacturing Systems CON2190
Product Development ◆ CON2200
Tool Maintenance ◆ CON3120
Furniture Making 3 ◆ (Leg & Rail) CON3130
Furniture Making 4 ◆ (Surface Enhancement) CON3140
Furniture Repair ◆ CON3150
Cabinetmaking 3 ◆ (Cabinets/Countertops) CON3160
Cabinetmaking 4 ◆ (Layout & Installation) CON3170
Production Planning CON3190
Production Management CON3200
Manufacturing Systems (Processes and Applications)

——— Prerequisite - - - - Recommended sequence

★ Module provides a strong foundation for further learning in this strand.

† Module is also offered in Fabrication Studies.

◆ Refer to specific modules for additional prerequisites.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE CON1010: BASIC TOOLS & MATERIALS

Level: Introductory

Theme: Building Systems (Processes and Applications)

Prerequisite: None

Module Description: Students develop basic hand tool and production skills to transform, safely, common building materials into useful products.

Module Learner Expectations: *The student will:*

- identify and describe the safe use of basic hand tools
- identify and compare the properties of common materials used in construction and fabrication activities
- apply construction/fabrication processes and skills to produce a product
- demonstrate basic competencies.

MODULE CON1070: BUILDING CONSTRUCTION

Level: Introductory

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students examine common building systems, and develop basic skills related to building a simple model or full size system/structure.

Module Learner Expectations: *The student will:*

- identify and describe the main systems found in a residential structure
- list and describe the basic materials and hand tools used in building construction
- apply basic construction techniques to build a simple scale model or full size structure/system
- profile a trade or occupation within the building construction industry
- demonstrate basic competencies.

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MODULE CON1120: PROJECT MANAGEMENT

Level: Introductory

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students develop basic shop drawing and estimating skills, and apply them to build a product.

Module Learner Expectations: *The student will:*

- identify and describe the parts of a technological system
- apply basic drawing skills to prepare a shop drawing
- prepare a project timeline, cost estimate and work schedule
- apply the use of a technological system to construct a simple product with multiple parts
- demonstrate basic competencies.

MODULE CON1130: SOLID STOCK CONSTRUCTION

Level: Introductory

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students develop basic hand and power tool skills to build a product made from solid wood.

Module Learner Expectations: *The student will:*

- identify and describe the physical characteristics of a variety of hard and soft woods
- apply basic drawing and transfer skills to prepare a pattern or template
- construct a wooden product, using basic joinery techniques
- demonstrate basic competencies.

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MODULE CON1140: TURNING OPERATIONS

Level: Introductory

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students use wood-turning equipment and techniques to create a faceplate and spindle turning made from solid and/or built-up stock.

Module Learner Expectations: *The student will:*

- operate, safely, a power wood lathe
- apply drawing and transfer skills to prepare a full size pattern or template
- produce a faceplate and spindle turning, using solid or built-up stock
- demonstrate basic competencies.

MODULE CON1160: MANUFACTURED MATERIALS

Level: Introductory

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students select and use the appropriate materials and tools to build a product or structure from a wood composite or other manufactured material.

Module Learner Expectations: *The student will:*

- identify and describe the characteristics of common manufactured materials
- demonstrate the safe use of a given hand and power tool
- create a product from a manufactured material, using basic joinery techniques
- demonstrate basic competencies.

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MODULE CON1180: MOLD MAKING & CASTING

Level: Introductory

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students apply knowledge of casting and molding materials and processes to prepare a mold and produce a casting.

Module Learner Expectations: *The student will:*

- list and describe common materials and processes used in casting/molding
- apply principles of pattern making to create a simple mold
- cast and finish a product, using the appropriate skills, materials and processes
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE CON2010: SITE PREPARATION

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop the knowledge and skills to acquire a building permit and to locate and prepare a site for excavation and foundation work.

Module Learner Expectations: *The student will:*

- identify and describe typical building site layout and excavation processes
- complete an application for a building permit
- apply site preparation skills to assist in the location of building site lines and features
- demonstrate basic competencies.

MODULE CON2020: CONCRETE FORMING

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop knowledge and skills related to the preparation and construction of a concrete foundation.

Module Learner Expectations: *The student will:*

- list and describe factors that affect footing and wall design
- identify and describe common forming materials and processes
- apply concrete forming skills to assist in forming and placing a concrete foundation
- demonstrate basic competencies.

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MODULE CON2030: ALTERNATIVE FOUNDATIONS

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop basic knowledge and skills related to the design and construction of an alternative foundation system.

Module Learner Expectations: *The student will:*

- identify and describe the components of an alternative foundation system
- identify the health hazards and precautions related to the use of engineered materials
- apply construction skills to assist in the design/construction of an alternative foundation system
- demonstrate basic competencies.

MODULE CON2040: FRAMING SYSTEMS 1 (FLOOR & WALL)

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop basic framing knowledge and skills associated with the construction of a floor and wall system.

Module Learner Expectations: *The student will:*

- identify and describe the parts of a floor and wall framing system
- read and interpret the appropriate drawings and specifications to create a floor and wall framing and sheathing estimate
- apply framing skills to assist in the layout and construction of floor and wall components
- demonstrate basic competencies.

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MODULE CON2050: ROOF STRUCTURES 1 (FRAMING & FINISHING)

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop basic knowledge and skills associated with framing and finishing a simple roof system.

Module Learner Expectations: *The student will:*

- identify and describe the different styles and parts of a roof system
- read and interpret the appropriate drawings and specifications to create a roof framing and finishing estimate
- apply roofing skills to assist in the framing and finishing of a roof structure
- demonstrate basic competencies.

MODULE CON2060: EXTERIOR FINISHING (DOOR, WINDOW & SIDING)

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students apply and develop basic knowledge of door, window and siding systems and installation skills and procedures.

Module Learner Expectations: *The student will:*

- identify and describe common types of exterior doors, windows and siding materials
- read and interpret the appropriate drawings and specifications to create a door and window schedule and siding estimate
- apply finishing skills to install a prehung door, a window unit and siding materials
- demonstrate basic competencies.

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MODULE CON2070: ELECTRICAL SYSTEMS

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students apply electrical principles, and develop an understanding of residential electrical code requirements and installation procedures.

Module Learner Expectations: *The student will:*

- list and describe the electrical systems and components associated with residential wiring
- apply wiring principles and code requirements to create a wiring diagram
- apply wiring skills to assist in the installation of a residential wiring system
- profile a trade or occupation within the electrical field
- demonstrate basic competencies.

MODULE CON2080: PLUMBING SYSTEMS

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop basic knowledge and skills to fabricate and make repairs to residential drainage, waste, vent (DWV) and water supply systems.

Module Learner Expectations: *The student will:*

- identify and describe the parts of a residential plumbing system
- create a drawing of a water supply, drainage, waste and vent system for a typical plumbing fixture
- apply plumbing skills to assist in the installation of a water supply, waste and vent system
- profile a trade or occupation within the plumbing field
- demonstrate basic competencies.

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MODULE CON2090: CLIMATE CONTROL SYSTEMS

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students investigate common heating, ventilating and air conditioning (HVAC) systems and principles, and participate in the installation or maintenance of one of these systems.

Module Learner Expectations: *The student will:*

- list and describe the major components of a typical heating, ventilating and air conditioning system
- prepare a preventive maintenance schedule for a heating, ventilating and/or air conditioning system
- service or install a heating, ventilating and/or air conditioning system
- profile a trade or occupation within the heating and air conditioning fields
- demonstrate basic competencies.

MODULE CON2100: AGRI-STRUCTURES

Level: Intermediate

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students apply construction principles and skills, and use pre-engineered designs to build a structure to be used for agricultural purposes.

Module Learner Expectations: *The student will:*

- identify the major issues that must be addressed when designing an agri-structure
- read and interpret the appropriate drawings and specifications to create a material and cost estimate
- construct a structure for use in agriculture
- demonstrate basic competencies.

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MODULE CON2120: MULTIPLE MATERIALS

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students develop a product that incorporates two or more types of material in its construction.

Module Learner Expectations: *The student will:*

- identify advantages of using different materials in a product
- apply knowledge of structural materials, planning, and construction techniques to produce a product from different materials
- demonstrate basic competencies.

MODULE CON2130: FURNITURE MAKING 1 (BOX CONSTRUCTION)

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students develop basic joinery skills and knowledge related to case construction, by producing a box-type piece of furniture.

Module Learner Expectations: *The student will:*

- identify and describe the design features and processes used to construct a box-type furniture product
- apply basic furniture-making skills to plan and construct a piece of furniture based on box construction techniques
- demonstrate basic competencies.

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MODULE CON2140: FURNITURE MAKING 2 (FRAME & PANEL)

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students use solid and/or composite materials to build a frame and panel product or component.

Module Learner Expectations: *The student will:*

- identify and describe the design features and processes used to construct a frame and panel product
- apply basic furniture-making skills to plan and construct a component or piece of furniture based on frame and panel construction techniques
- demonstrate basic competencies.

MODULE CON2150: FINISHING & REFINISHING

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students use knowledge of finishing materials and finishing techniques to apply new and replacement finishes.

Module Learner Expectations: *The student will:*

- identify common finishes and finishing/refinishing techniques
- identify and describe the health hazards and Workplace Hazardous Materials Information System (WHMIS) regulations associated with the products used in finishing/refinishing
- demonstrate appropriate finishing/refinishing techniques
- demonstrate basic competencies.

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MODULE CON2160: CABINETMAKING 1 (WEB & FACE FRAME)

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students apply web and face frame construction techniques, and use solid and/or manufactured materials to produce a built-in or modular cabinet.

Module Learner Expectations: *The student will:*

- identify and describe the design features and processes used to construct a web and face frame product
- prepare a detailed material list and event sequence
- build a cabinet, using web and face frame construction techniques
- demonstrate basic competencies.

MODULE CON2170: CABINETMAKING 2 (DOOR & DRAWER)

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students use solid and composite materials to develop skills in building cabinet doors and drawers.

Module Learner Expectations: *The student will:*

- identify and describe common methods of designing and constructing cabinet doors and drawers
- apply cabinetmaking skills to plan and construct door/drawer components
- profile a trade or occupation within the cabinetmaking field
- demonstrate basic competencies.

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MODULE CON2180: WOOD FORMING

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students apply skills in mold making and wood conditioning to make a formed part or component.

Module Learner Expectations: *The student will:*

- describe common wood forming techniques
- build or obtain the necessary molds and clamping devices to bend a piece of solid stock or wood laminate
- apply wood forming skills and techniques to make a product or component
- demonstrate basic competencies.

MODULE CON2190: MANUFACTURING SYSTEMS

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: None

Module Description: Students investigate the nature of manufacturing systems used to produce durable goods.

Module Learner Expectations: *The student will:*

- describe current production systems used to manufacture durable goods
- identify the lines of communication and decision making in a typical production system
- explain how the production of durable goods is being altered by the effects of technology and the global economy
- demonstrate basic competencies.

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MODULE CON2200: PRODUCT DEVELOPMENT

Level: Intermediate

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students work, individually or as team members, to research, design and build a product suitable for mass production and marketing.

Module Learner Expectations: *The student will:*

- list and describe the steps involved in developing a product for manufacturing
- apply designing and planning skills to assist in the development of a prototype
- describe the marketing and manufacturing potential of a product
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE CON3010: CONCRETE WORK (STRUCTURES & FINISHES)

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop essential skills to form, place and finish a concrete project.

Module Learner Expectations: *The student will:*

- identify and describe concrete forming, placing and finishing techniques
- use the appropriate tools, materials and processes to form, reinforce, place and finish a concrete structure
- create a profile of a trade or occupation within the field of concrete work
- demonstrate basic competencies.

MODULE CON3020: MASONRY WORK (STRUCTURES & FINISHES)

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop basic knowledge and skills related to masonry materials, structures and finishes.

Module Learner Expectations: *The student will:*

- identify and describe common types of masonry materials and finishes
- read and interpret a working drawing to prepare a cost estimate of a masonry surface
- apply masonry skills to assist in the application of a masonry finish or in the construction of a masonry structure
- create a profile of a trade or occupation within the field of masonry work
- demonstrate basic competencies.

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MODULE CON3030: WALL & CEILING FINISHING

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop basic knowledge and skills to insulate, install and finish an interior wall/ceiling surface.

Module Learner Expectations: *The student will:*

- describe the procedures related to the installation of insulation and vapour barrier to an exterior wall and ceiling
- identify and describe the health hazards and safety precautions associated with the use of insulating, drywalling and finishing materials
- prepare, apply and finish a wall and ceiling surface
- demonstrate basic competencies.

MODULE CON3040: STAIR CONSTRUCTION

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop the knowledge and skills required to build a straight flight of stairs.

Module Learner Expectations: *The student will:*

- identify and describe different stair types, component parts and construction techniques
- interpret building code regulations pertaining to residential stair design
- design, lay out and construct a straight flight of stairs
- demonstrate basic competencies.

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MODULE CON3050: ROOF STRUCTURES 2 (FRAMING & COVERING)

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON2050 Roof Structures 1 (Framing & Finishing)

Module Description: Students develop basic competencies in laying out, cutting and assembling common and hip and valley rafters in relation to specialized structures and coverings.

Module Learner Expectations: *The student will:*

- identify and describe the design features of intersecting sloped roofs
- calculate the length of rafters, using ratio and proportion techniques
- lay out, cut and assemble a set of rafters for a roof assembly
- demonstrate basic competencies.

MODULE CON3060: DOORS & TRIM

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students apply basic finish carpentry knowledge and skills to install doors, railings and moldings.

Module Learner Expectations: *The student will:*

- identify common types of doors, hardware and trim products
- install doors, moldings and other trim products
- create a profile of a trade or occupation within the finish carpentry field
- demonstrate basic competencies.

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MODULE CON3070: FLOORCOVERING

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students develop skills in selecting and installing typical floor coverings used in residential, institutional and commercial buildings.

Module Learner Expectations: *The student will:*

- identify and describe common types of residential, institutional and commercial floor coverings
- apply flooring skills to assist in the installation of a floor covering
- create a profile of a trade or occupation within the floor covering field
- demonstrate basic competencies.

MODULE CON3080: ENERGY-EFFICIENT HOUSING

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students investigate construction practices and support systems to create an energy-efficient housing design.

Module Learner Expectations: *The student will:*

- identify and describe energy-efficient construction materials and techniques
- calculate the energy efficiency of a typical residence or commercial structure
- write a proposal outlining how to improve the energy efficiency of a given building
- demonstrate basic competencies.

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MODULE CON3090: RENOVATIONS/RESTORATIONS

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students work with a client to plan and complete a building renovation and/or restoration.

Module Learner Expectations: *The student will:*

- complete a feasibility study and cost estimate of a renovation/restoration project
- apply construction skills to assist in a building renovation/restoration project, using traditional and modern construction materials and techniques
- demonstrate basic competencies.

MODULE CON3100: COMMERCIAL STRUCTURES

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students investigate structural designs, construction techniques and work site practices related to commercial construction.

Module Learner Expectations: *The student will:*

- compare the differences between residential, institutional and commercial construction
- describe common types of materials and construction techniques used in commercial construction
- demonstrate commercial construction job site expectations and skill requirements
- demonstrate basic competencies.

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MODULE CON3110: SITE MANAGEMENT

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON1070 Building Construction

Module Description: Students consider the efficient and timely delivery of a quality product. They investigate and report on site management theories and practices to produce a project management plan.

Module Learner Expectations: *The student will:*

- identify and describe the key elements of project management related to commercial and residential construction
- outline the roles and responsibilities of the principal players on a construction project
- apply site management theories and practices to create a management plan for a construction project
- demonstrate basic competencies.

MODULE CON3120: TOOL MAINTENANCE

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students develop skills in preventive maintenance by routinely inspecting and servicing production tools and equipment.

Module Learner Expectations: *The student will:*

- identify and describe the essential elements and desired outcomes of a preventive maintenance program
- prepare a maintenance schedule for a piece of equipment
- apply established maintenance procedures to assess and maintain hand and power tools
- demonstrate basic competencies.

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MODULE CON3130: FURNITURE MAKING 3 (LEG & RAIL)

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students use solid and/or manufactured materials and leg-and-rail or pedestal construction techniques to build a free-standing piece of furniture.

Module Learner Expectations: *The student will:*

- identify and describe the design features and joinery techniques of a typical leg-and-rail piece of furniture
- apply drawing and estimating skills and techniques to prepare a shop drawing, detailed material list and cost estimate
- plan and build a piece of furniture, using leg-and-rail construction techniques
- demonstrate basic competencies.

MODULE CON3140: FURNITURE MAKING 4 (SURFACE ENHANCEMENT)

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students explore and demonstrate the use of veneer, inlay, carving and/or marquetry techniques to enhance the appearance of a product or component.

Module Learner Expectations: *The student will:*

- identify and describe methods of matching wood veneer
- differentiate between inlay, marquetry and carving techniques
- create a veneer, inlay or carving feature for a product or component
- demonstrate basic competencies.

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MODULE CON3150: FURNITURE REPAIR

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students apply basic knowledge of furniture construction and materials to repair or replace existing components or coverings.

Module Learner Expectations: *The student will:*

- assess the condition of a piece of furniture to determine whether it can be economically repaired or restored
- prepare a repair/restoration plan and cost estimate
- repair/restore a piece of furniture
- demonstrate basic competencies.

MODULE CON3160: CABINETMAKING 3 (CABINETS/COUNTERTOPS)

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students develop the knowledge and skills required to build and install a simple cabinet/countertop complete with an appropriate backsplash and edge treatment.

Module Learner Expectations: *The student will:*

- identify and describe common types of cabinets/countertops and installation procedures
- identify and describe a suitable edge treatment for a given application
- apply/install a given material to produce a suitable cabinet/countertop
- demonstrate basic competencies.

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MODULE CON3170: CABINETMAKING 4 (LAYOUT & INSTALLATION)

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1120 Project Management

Module Description: Students develop a floor/wall cabinet plan and order and install a set of prebuilt cabinets.

Module Learner Expectations: *The student will:*

- design a room layout and prepare a cabinet schedule
- lay out and install a set of cabinets and countertops
- create a profile of a trade or occupation within the cabinetmaking field
- demonstrate basic competencies.

MODULE CON3190: PRODUCTION PLANNING

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON2200 Product Development

Module Description: Students plan, individually or as team members, a production system, and create the necessary work cells and floor plan to produce a given product in a safe and efficient manner.

Module Learner Expectations: *The student will:*

- identify the characteristics of an efficient production system
- analyze a product to determine the necessary production processes and tools
- create a production flow chart and/or facility layout
- demonstrate basic competencies.

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MODULE CON3200: PRODUCTION MANAGEMENT

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON3190 Production Planning

Module Description: Students identify and enhance management skills in relation to the development and deployment of people and physical resources.

Module Learner Expectations: *The student will:*

- describe effective production management strategies
- develop a system to manage and schedule work and to control materials and completed products
- use effective management skills to operate an efficient production system
- demonstrate basic competencies.

MODULE CON3210: FRAMING SYSTEMS 2 (FLOOR, WALL & CEILING)

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON2040 Framing Systems 1 (Floor & Wall)

Module Description: Students develop appropriate layout and assembly skills to install conventional and/or engineered framing components associated with residential and/or light commercial construction.

Module Learner Expectations: *The student will:*

- compare conventional and engineered framing systems and components
- apply print-reading and estimating principles to prepare a material list and cost estimate for a structure that incorporates conventional and/or engineered framing components
- demonstrate advanced framing, layout and assembly skills
- demonstrate basic competencies.

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COSMETOLOGY STUDIES

B. STRAND RATIONALE AND PHILOSOPHY

Throughout history, people have practised various forms of body care, grooming and enhancement for personal, social, cultural and religious reasons. Some practitioners have applied their abilities in the workplace by providing professional cosmetology services to clients. The personal and professional care, grooming and enhancement of the human body is supported by an array of industries including those that manufacture cosmetics and related equipment, tools and supplies for personal and/or professional use, and those that provide professional cosmetology services. Each of these industries provides career opportunities for suitably qualified people.

Cosmetology Studies, a strand in Career and Technology Studies, focuses on personal and professional grooming, body care and enhancement practices, and provides students with opportunities to explore and prepare for cosmetology-related career options.

Cosmetology Studies encourages the student-centred process approach, which combines the development of thinking processes and practiced skills in concrete, realistic learning situations. Throughout Cosmetology Studies, students are encouraged to solve problems, make decisions and develop the abilities and flexibility needed to adapt quickly to new situations, including changes in career paths.

The emerging workplace requires that new entrants be lifelong learners who are able to access information and use technology to help solve problems and make decisions. Within the philosophy of Career and Technology Studies, *students* in Cosmetology Studies *will*:

- become responsible citizens
- appreciate and understand why personal appearance is significant in the home, at school and in the workplace
- identify and access career opportunities in cosmetology and appreciate the preparation needed to enter and progress in related fields
- develop confidence and flexibility as they assume adult roles and responsibilities and move into the workplace and/or further education and training programs
- achieve personal wellness by learning about personal and professional body care and grooming
- study, practise and achieve competencies in personal and professional grooming practices
- identify, practise and maintain high standards of safety and sanitation in personal and professional grooming activities.

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In order to achieve these competencies, *the student will*:

- apply knowledge, skills and attitudes from other disciplines in contexts related to self, family and workplace
- develop basic and career-specific skills that have applications for personal use and specific applications in the world of work
- develop positive attitudes toward work through participation in realistic learning activities in varied learning environments
- develop a more positive self-concept as he or she assumes increasingly complex roles and responsibilities
- develop a greater awareness of the role of cosmetology-related businesses and industries in society, and the potential for enterprise and innovation within the cosmetology industry.

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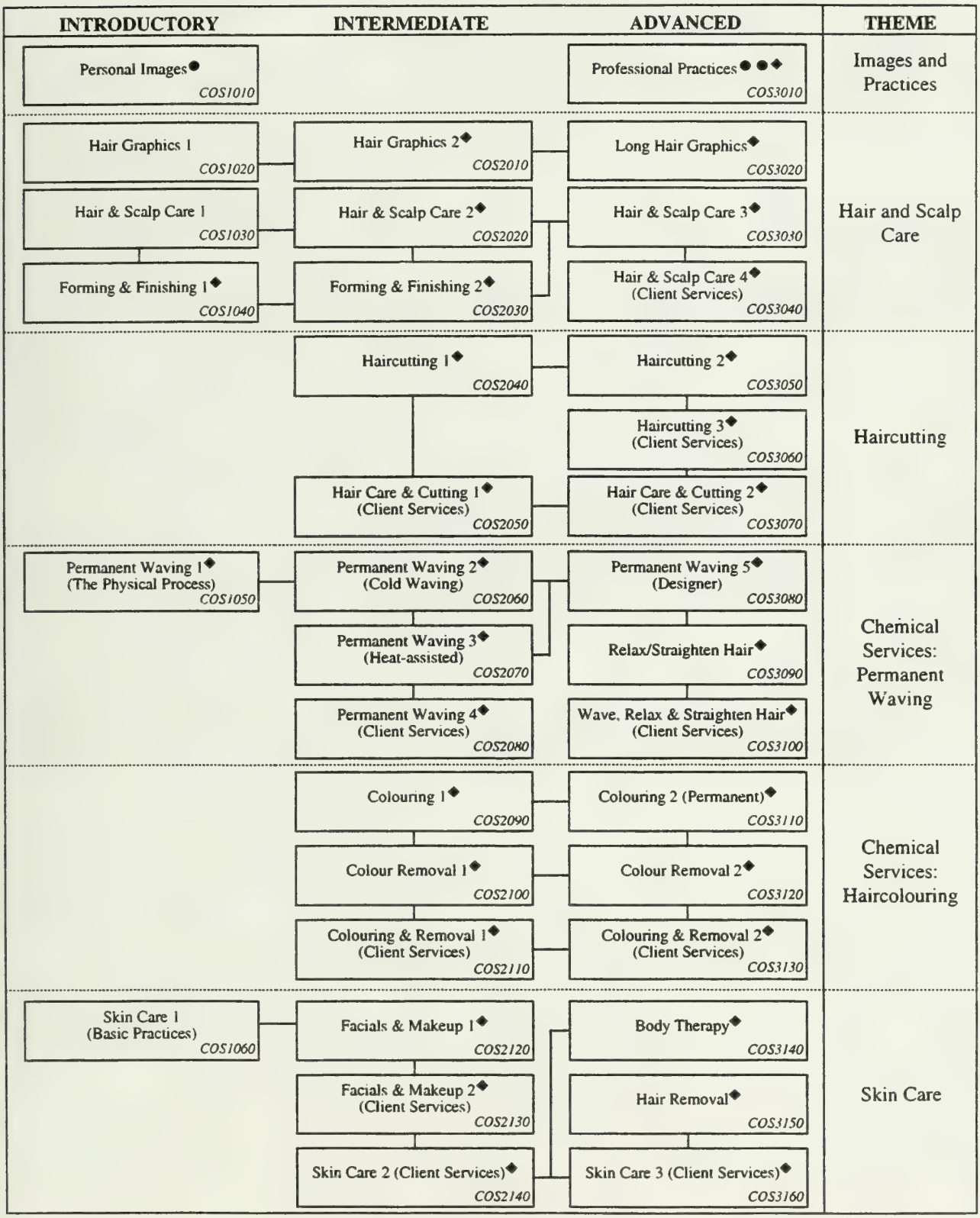
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Personal Images● COS1010
Professional Practices●●◆ COS3010
Images and Practices
Hair Graphics 1 COS1020
Hair Graphics 2◆ COS2010
Long Hair Graphics◆ COS3020
Hair & Scalp Care 1 COS1030
Hair & Scalp Care 2◆ COS2020
Hair & Scalp Care 3◆ COS3030
Forming & Finishing 1◆ COS1040
Forming & Finishing 2◆ COS2030
Hair & Scalp Care 4◆ (Client Services) COS3040
Hair and Scalp Care
Haircutting 1◆ COS2040
Haircutting 2◆ COS3050
Haircutting 3◆ (Client Services) COS3060
Hair Care & Cutting 1◆ (Client Services) COS2050
Hair Care & Cutting 2◆ (Client Services) COS3070
Haircutting
Permanent Waving 1◆ (The Physical Process) COS1050
Permanent Waving 2◆ (Cold Waving) COS2060
Permanent Waving 5◆ (Designer) COS3080
Permanent Waving 3◆ (Heat-assisted) COS2070
Relax/Straighten Hair◆ COS3090
Permanent Waving 4◆ (Client Services) COS2080
Wave, Relax & Straighten Hair◆ (Client Services) COS3100
Chemical Services: Permanent Waving
Colouring 1◆ COS2090
Colouring 2 (Permanent)◆ COS3110
Colour Removal 1◆ COS2100
Colour Removal 2◆ COS3120
Colouring & Removal 1◆ (Client Services) COS2110
Colouring & Removal 2◆ (Client Services) COS3130
Chemical Services: Haircolouring
Skin Care 1 (Basic Practices) COS1060
Facials & Makeup 1◆ COS2120
Body Therapy◆ COS3140
Facials & Makeup 2◆ (Client Services) COS2130
Hair Removal◆ COS3150
Skin Care 2 (Client Services)◆ COS2140
Skin Care 3 (Client Services)◆ COS3160
Skin Care

——— Prerequisite - - - - Recommended sequence

● Prerequisite to all introductory modules in this strand.

●● Prerequisite to all advanced modules in this strand.

◆ Refer to specific modules for additional prerequisites.

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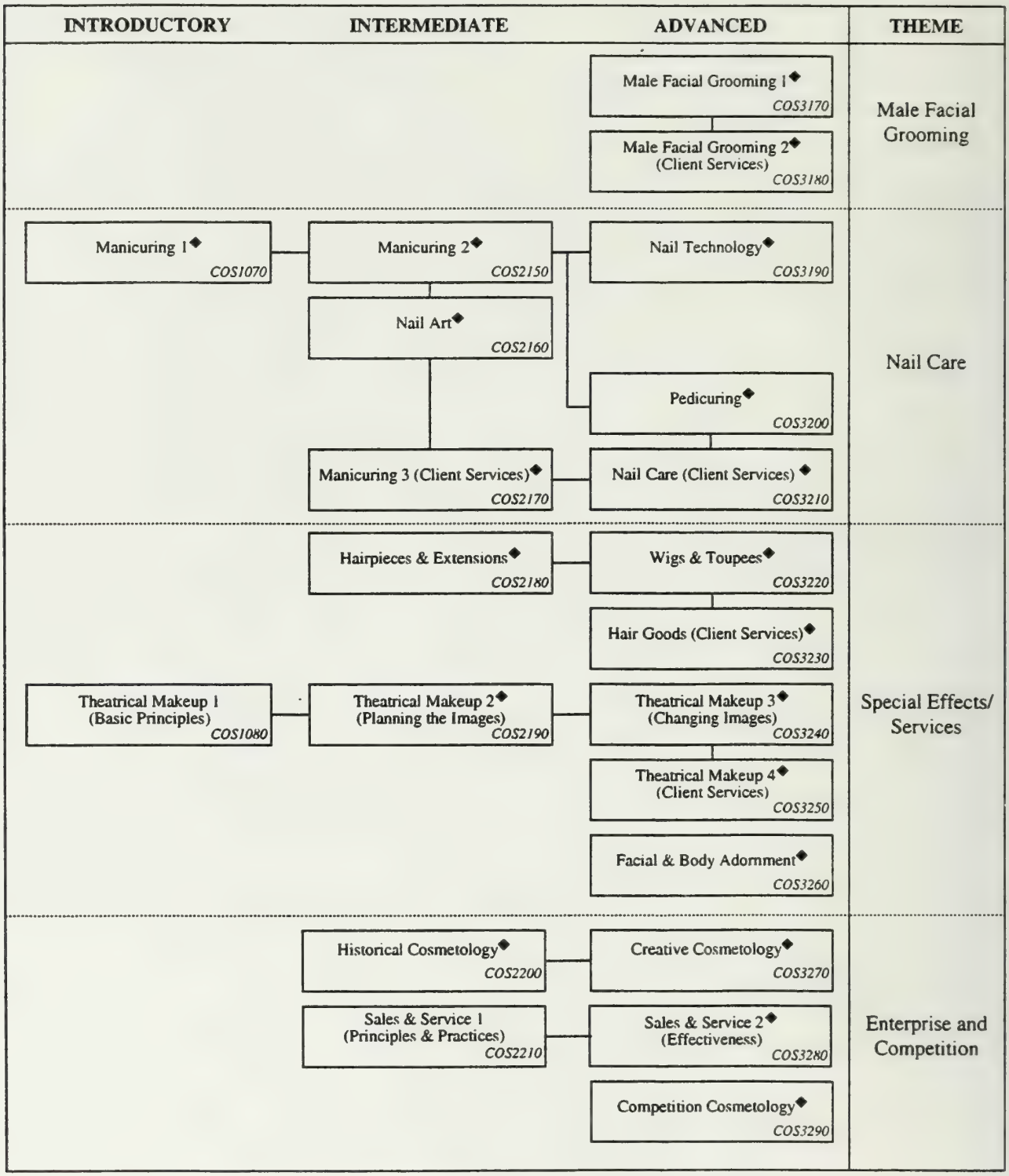
SCOPE AND SEQUENCE (continued)



——— Prerequisite - - - - Recommended sequence

◆ Refer to specific modules for additional prerequisites.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE COS1010: PERSONAL IMAGES

Level: Introductory

Theme: Images and Practices

Prerequisite: None

Module Description: Students develop increased appreciation for the significance of personal grooming in various life situations, as well as the knowledge and skills required to perform basic grooming practices.

Module Learner Expectations: *The student will:*

- appreciate that one's appearance is a mode of communication with others
- describe the relationship between a well-groomed appearance and a positive self-concept and develop a personal grooming plan
- identify, compare, apply and assess personal grooming practices and products that contribute to healthfulness
- demonstrate basic competencies.

MODULE COS1020: HAIR GRAPHICS 1

Level: Introductory

Theme: Hair and Scalp Care

Prerequisite: COS1010 Personal Images

Module Description: Students handle hair confidently; brush, comb and part hair correctly, and create ropes, knots and two- or three-strand braids.

Module Learner Expectations: *The student will:*

- distinguish among and name different techniques used to create hair graphics
- identify and describe safety and sanitation practices used when creating hair graphics
- handle hair confidently while using a variety of implements to control, direct and part hair
- create and properly secure hair graphics, including ropes, knots and two- and three-strand braids
- demonstrate basic competencies.

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MODULE COS1030: HAIR & SCALP CARE 1

Level: Introductory

Theme: Hair and Scalp Care

Prerequisite: COS1010 Personal Images

Module Description: Students analyze and describe the structure and condition of hair and scalp, as well as identify and use basic cleansing and surface conditioning products.

Module Learner Expectations: *The student will:*

- describe the structure, functions and conditions of the hair and scalp
- describe internal and external factors that may affect the hair and scalp
- select and use a variety of hair and scalp care products and implements to perform hair and scalp care treatments, including brushing, combing, cleansing and conditioning
- perform hair and scalp care treatments in a safe and sanitary manner
- demonstrate basic competencies.

MODULE COS1040: FORMING & FINISHING 1

Level: Introductory

Theme: Hair and Scalp Care

Prerequisite: COS1030 Hair & Scalp Care 1

Module Description: Students wave, curl and style hair, using a variety of equipment, tools and supply items.

Module Learner Expectations: *The student will:*

- identify and describe techniques available for forming and finishing hair
- select and use appropriate equipment, implements and materials for forming and finishing hair into selected hair effects and hairstyles
- perform all forming and finishing activities in a safe and sanitary manner
- demonstrate basic competencies.

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MODULE COS1050: PERMANENT WAVING 1 (THE PHYSICAL PROCESS)

Level: Introductory

Theme: Chemical Services: Permanent Waving

Prerequisite: COS1030 Hair & Scalp Care 1

Module Description: Students section, block and wind hair for a basic permanent wave, using conventional waving rods and supplies.

Module Learner Expectations: *The student will:*

- describe the history of permanent waving
- distinguish between the physical and chemical processes involved in the permanent waving of hair
- perform basic sectioning, blocking and winding techniques
- demonstrate alternative sectioning, blocking and winding techniques
- identify and follow safe and sanitary practices
- maintain records of processes used
- demonstrate basic competencies.

MODULE COS1060: SKIN CARE 1 (BASIC PRACTICES)

Level: Introductory

Theme: Skin Care

Prerequisite: COS1010 Personal Images

Module Description: Students identify the basic structures and functions of the skin, analyze skin and perform basic skin care practices, including cleansing, toning, nourishing and protecting.

Module Learner Expectations: *The student will:*

- describe the functions of skin and identify the basic structure of skin, types of skin and factors that affect the condition of skin
- analyze skin, determine skin types and perform basic skin care, including safe and sanitary:
  - cleansing
  - toning
  - nourishing
  - protecting
- demonstrate basic competencies.

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MODULE COS1070: MANICURING 1

Level: Introductory

Theme: Nail Care

Prerequisite: COS1010 Personal Images

Module Description: Students identify the functions, shapes and basic structure of fingernails, conditions of hands and fingernails, and perform a plain manicure.

Module Learner Expectations: *The student will:*

- describe the functions and identify and describe the:
  - basic structure of fingernails
  - common fingernail shapes
  - factors affecting the conditions of fingernails
- identify resources used to perform a plain manicure
- analyze hands and nails, perform plain manicures and follow safe and sanitary practices
- demonstrate basic competencies.

MODULE COS1080: THEATRICAL MAKEUP 1 (BASIC PRINCIPLES)

Level: Introductory

Theme: Special Effects/Services

Prerequisite: COS1060 Skin Care 1 (Basic Practices)

Module Description: Students describe the purpose and scope of theatrical makeup, identify elements related to designing theatrical makeup, and use appropriate materials to perform basic theatrical makeup techniques.

Module Learner Expectations: *The student will:*

- describe the purpose and scope of theatrical makeup and describe the basic principles of colour and theatrical makeup
- design, plan and create, in a safe and sanitary manner, basic theatrical makeup
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE COS2010: HAIR GRAPHICS 2

Level: Intermediate

Theme: Hair and Scalp Care

Prerequisite: COS1020 Hair Graphics 1

Module Description: Students use photo or other images as guides to recreate a variety of ropes, braids, knots, rolls and twists to produce finished hairstyles.

Module Learner Expectations: *The student will:*

- demonstrate understanding of the principles of symmetry and asymmetry as applied to hairstyling
- select and recreate images of ropes, braids, knots, rolls and twists to produce secure finished hairstyles and hair graphics
- demonstrate basic competencies.

MODULE COS2020: HAIR & SCALP CARE 2

Level: Intermediate

Theme: Hair and Scalp Care

Prerequisite: COS1030 Hair & Scalp Care 1

Module Description: Students analyze the histology and condition of hair and the relationship of hair to the scalp, and select and use appropriate hair and scalp cleansing and conditioning products.

Module Learner Expectations: *The student will:*

- describe the relationships among:
  - hair condition
  - scalp condition
  - safe and sanitary hair care practices
- identify and describe the purpose and application of various hair and scalp care products and technologies
- perform hair and scalp care services, including client analysis and preparation, hair and scalp analysis, product and technology selection, shampooing and conditioning
- demonstrate basic competencies.

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MODULE COS2030: FORMING & FINISHING 2

Level: Intermediate

Theme: Hair and Scalp Care

Prerequisite: COS1040 Forming & Finishing 1

Module Description: Students analyze head and facial features, determine suitable hairstyles, and form and finish hairstyles.

Module Learner Expectations: *The student will:*

- form hair by shaping, constructing and securing a variety of pin curls
- finish hair by combing out constructed and dried pin curls
- identify, describe and analyze factors that affect the selection of a hairstyle and the forming and finishing techniques suited to achieving the selected hairstyle
- wave and curl hair using a combination of forming and finishing techniques, including:
  - pin curling
  - roller setting
  - iron setting
  - finger waving
  - blow waving/styling
- demonstrate basic competencies.

MODULE COS2040: HAIRCUTTING 1

Level: Intermediate

Theme: Haircutting

Prerequisite: COS2030 Forming & Finishing 2

Module Description: Students demonstrate safe handling of haircutting and hairthinning tools, and describe and demonstrate basic cutting methods.

Module Learner Expectations: *The student will:*

- define and describe terms related to professional haircutting and explain why professional haircutting is the foundation for hairstyling, other hair services and a feature of personal grooming
- describe and demonstrate safe handling of haircutting and hairthinning tools
- interpret and follow cutting patterns to:
  - section
  - cut
  - follow guidelines
  - section and cut hair to predetermined shapes, lengths and styles
- demonstrate basic competencies.

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MODULE COS2050: HAIR CARE & CUTTING 1 (CLIENT SERVICES)

Level: Intermediate

Theme: Haircutting

Prerequisite: COS2040 Haircutting 1

Module Description: Students analyze a client's need for hair and scalp care and perform the necessary services.

Module Learner Expectations: *The student will:*

- meet, greet and make a client feel welcome and comfortable, and prepare the client for selected services
- consult with and analyze a client's needs for hair and scalp care and haircutting services, and recommend suitable services
- perform hair and scalp care and haircutting services agreed to by a client in a safe and sanitary manner, and record information on services performed
- demonstrate basic competencies.

MODULE COS2060: PERMANENT WAVING 2 (COLD WAVING)

Level: Intermediate

Theme: Chemical Services: Permanent Waving

Prerequisite: COS1050 Permanent Waving 1 (The Physical Process)

Module Description: Students identify types of chemicals used to permanently wave hair and the relationship between the chemical process and the physical process. Students also analyze hair and combine the two processes to perform complete cold waves.

Module Learner Expectations: *The student will:*

- distinguish between techniques used to curl hair temporarily and permanently; describe the chemistry of cold waving, and the effects of cold waving chemicals on the hair and scalp
- prepare and protect the client, self and others, and perform basic physical and chemical cold waving processes in a safe and sanitary manner, and maintain records of materials used and results attained
- demonstrate basic competencies.

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MODULE COS2070: PERMANENT WAVING 3 (HEAT-ASSISTED)

Level: Intermediate

Theme: Chemical Services: Permanent Waving

Prerequisite: COS2060 Permanent Waving 2 (Cold Waving)

Module Description: Students use appropriate physical and chemical processes and products to perform heat-assisted permanent waves, and analyze the quality of the waves.

Module Learner Expectations: *The student will:*

- distinguish between:
  - procedures, technologies and effects of heat-assisted and cold permanent waving on the hair and scalp
  - technology and techniques used in heat-assisted waving and cold waving
- section, block, wrap, wind and process hair, using available heat-assisted waving techniques, and protect the health and safety of a client, self and others
- demonstrate basic competencies.

MODULE COS2080: PERMANENT WAVING 4 (CLIENT SERVICES)

Level: Intermediate

Theme: Chemical Services: Permanent Waving

Prerequisite: COS2070 Permanent Waving 3 (Heat-assisted)

Module Description: Students analyze the condition of hair, identify and describe available types of permanent waves, and recommend and perform permanent waving services appropriate to the client's needs and wants.

Module Learner Expectations: *The student will:*

- meet, greet, welcome and orient a client to available permanent waving services
- consult with and analyze a client's needs, hair and scalp condition and suitability for permanent waving services, and recommend suitable services
- perform permanent waving services agreed to by a client in a safe and sanitary manner, and record information or services performed
- demonstrate basic competencies.

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MODULE COS2090: COLOURING 1

Level: Intermediate

Theme: Chemical Services: Haircolouring

Prerequisite: COS1030 Hair & Scalp Care 1
COS1040 Forming & Finishing 1

Module Description: Students describe the basic principles of colour and haircolouring, describe and perform patch/predisposition and strand tests, and prepare and apply temporary and semipermanent haircolours.

Module Learner Expectations: *The student will:*

- describe and explain principles and practices of colouring hair; identify and describe the different types of haircolouring agents, their chemistry and effects on the hair and scalp
- analyze hair and scalp; determine their suitability for different types of haircolouring; perform safe and sanitary, temporary and semipermanent haircolouring practices
- demonstrate basic competencies.

MODULE COS2100: COLOUR REMOVAL 1

Level: Intermediate

Theme: Chemical Services: Haircolouring

Prerequisite: COS2090 Colouring 1

Module Description: Students describe the basic principles of colour removal, levels of colour, colour removal chemicals and application procedures, and prepare and apply a variety of products to remove natural and artificial haircolour.

Module Learner Expectations: *The student will:*

- define terms and explain practices related to removal of colour from hair, and explain the chemistry and action of hydrogen peroxide in the highlighting and colour removal process
- analyze hair and scalp, determine suitability for a colour removal procedure, prepare, apply and process selected colour removal agents, and follow safe and sanitary practices
- demonstrate basic competencies.

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MODULE COS2110: COLOURING & REMOVAL 1 (CLIENT SERVICES)

Level: Intermediate

Theme: Chemical Services: Haircolouring

Prerequisite: COS2020 Hair & Scalp Care 2
COS2030 Forming & Finishing 2
COS2100 Colour Removal 1

Module Description: Students analyze the condition of a client's hair and scalp, and prepare for and perform colouring and colour removal services.

Module Learner Expectations: *The student will:*

- meet, greet, welcome and orient a client to haircolouring and colour removal services
- consult with and analyze a client's needs, hair and scalp condition and suitability for haircolouring or colour removal services, and recommend suitable services
- perform colouring or decolouring services agreed to by a client in a safe and sanitary manner, and record information on services performed and chemicals used
- demonstrate basic competencies.

MODULE COS2120: FACIALS & MAKEUP 1

Level: Intermediate

Theme: Skin Care

Prerequisite: COS1060 Skin Care 1 (Basic Practices)

Module Description: Students describe the anatomy, physiology and histology of the skin and the effect of pathogenic organisms on the body. Students also analyze facial shapes and conditions, and perform facial care and corrective makeup techniques.

Module Learner Expectations: *The student will:*

- relate knowledge about bacteriology and human anatomy, physiology and histology to the service and practice of cosmetology
- analyze facial shapes, features and conditions; identify and describe conditions that may/may not be treated by a cosmetologist
- perform basic facial care and corrective makeup services in a safe and sanitary manner
- demonstrate basic competencies.

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MODULE COS2130: FACIALS & MAKEUP 2 (CLIENT SERVICES)

Level: Intermediate

Theme: Skin Care

Prerequisite: COS2120 Facials & Makeup 1

Module Description: Students consult with and analyze a client's skin care needs, and perform a variety of facial services, including surface cleansing and corrective makeup techniques.

Module Learner Expectations: *The student will:*

- meet, greet, welcome and orient client to facials and makeup services
- consult with and analyze a client's needs for facial and makeup services, and perform facials and basic and corrective makeup services in a safe and sanitary manner
- demonstrate basic competencies.

MODULE COS2140: SKIN CARE 2 (CLIENT SERVICES)

Level: Intermediate

Theme: Skin Care

Prerequisite: COS2130 Facials & Makeup 2 (Client Services)

Module Description: Students consult with and analyze the client's skin care needs, and recommend and perform client-approved services, including cleansing, toning (manual and electrical massage), nourishing and protecting.

Module Learner Expectations: *The student will:*

- meet, greet, welcome and orient a client to available skin care services, including available skin care technology
- consult with and analyze a client's skin care condition and needs, recommend appropriate services and technology-based treatments, and perform skin care services and treatments in a safe and sanitary manner
- demonstrate basic competencies.

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MODULE COS2150: MANICURING 2

Level: Intermediate

Theme: Nail Care

Prerequisite: COS1070 Manicuring 1

Module Description: Students describe the anatomy of the arm and hand, identify diseases and disorders of the hands and nails and hand and nail conditions that may be treated by a manicurist, and recommend and perform services for treatable conditions.

Module Learner Expectations: *The student will:*

- recognize conditions, disorders and diseases of the hands and nails, describe conditions and disorders that may be treated by a manicurist, and suggest treatments for each condition or disorder
- analyze treatable hand and nail conditions, perform a variety of manicuring services, including plain and oil manicures, and hand and arm massage
- demonstrate basic competencies.

MODULE COS2160: NAIL ART

Level: Intermediate

Theme: Nail Care

Prerequisite: COS2150 Manicuring 2

Module Description: Students describe nail art techniques used to enhance the appearance of fingernails, as well as design and produce simple nail art.

Module Learner Expectations: *The student will:*

- define and describe nail art, and identify and describe materials and cosmetics available to create various nail art procedures and create basic nail art designs
- design a variety of nail art images, using appropriate nail art materials and cosmetics
- demonstrate basic competencies.

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MODULE COS2170: MANICURING 3 (CLIENT SERVICES)

Level: Intermediate

Theme: Nail Care

Prerequisite: COS2160 Nail Art

Module Description: Students analyze hands and nails to determine manicure needs and the presence of treatable and nontreatable conditions, as well as select and perform appropriate manicure and related services.

Module Learner Expectations: *The student will:*

- meet, greet and orient a client to available manicure services
- consult with and analyze a client's hands, nails and manicure needs, and perform services in a safe and sanitary manner
- demonstrate basic competencies.

MODULE COS2180: HAIRPIECES & EXTENSIONS

Level: Intermediate

Theme: Special Effects/Services

Prerequisite: COS1030 Hair & Scalp Care 1
COS2030 Forming & Finishing 2

Module Description: Students describe the purpose of hairpieces and extensions and types of hair and fibres used in constructing hair goods, and analyze and service hair goods.

Module Learner Expectations: *The student will:*

- describe the uses of hair goods and distinguish among the types of hair and fibres used in constructing hair goods
- analyze hair goods, perform appropriate cleansing, conditioning, forming and finishing procedures on hairpieces and extensions, and attach hairpieces and extensions
- demonstrate basic competencies.

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MODULE COS2190: THEATRICAL MAKEUP 2 (PLANNING THE IMAGES)

Level: Intermediate

Theme: Special Effects/Services

Prerequisite: COS1080 Theatrical Makeup 1 (Basic Principles)
DES1020 The Design Process [Design Studies Strand]

Module Description: Students design, select and apply makeup to create images of selected characters and to enhance personal appearances for theatrical purposes.

Module Learner Expectations: *The student will:*

- develop a plan to change physical images by applying design principles to the use of theatrical makeup
- execute theatrical makeup plans to create, change and enhance physical images
- demonstrate basic competencies.

MODULE COS2200: HISTORICAL COSMETOLOGY

Level: Intermediate

Theme: Enterprise and Competition

Prerequisite: COS2010 Hair Graphics 2
COS2020 Hair & Scalp Care 2
COS2030 Forming & Finishing 2
COS1060 Skin Care 1 (Basic Practices)
COS2120 Facials & Makeup 1
DES1020 The Design Process [Design Studies Strand]

Module Description: Students, in addition to recreating historical hairstyles and facial images, describe the historical trends in hairstyles and makeup, and the relationship between historical changes in cosmetology to other changes in society.

Module Learner Expectations: *The student will:*

- identify and describe:
  - historical, period-related trends in hair and makeup stylings
  - career options available to cosmetologists skilled in recreating historical hair and makeup stylings
- apply principles and practices of cosmetology and design to design and create historical hair and facial stylings
- demonstrate basic competencies.

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MODULE COS2210: SALES & SERVICE 1 (PRINCIPLES & PRACTICES)

Level: Intermediate

Theme: Enterprise and Competition

Prerequisite: COS1010 Personal Images

Module Description: Students describe and demonstrate basic principles of selling and service in the various sectors of the cosmetology industry.

Module Learner Expectations: *The student will:*

- identify and describe ethical principles and practices of professional cosmetologists
- define, describe and demonstrate the attention, interest, desire, action (AIDA) and courtesy, attention, receptivity/respect, efficiency/effectiveness (CARE) principles, and apply these principles to personal selling, and display merchandising within the cosmetology industry
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE COS3010: PROFESSIONAL PRACTICES

Level: Advanced

Theme: Images and Practices

Prerequisite: COS1010 Personal Images
COS2020 Hair & Scalp Care 2
COS2030 Forming & Finishing 2
COS1060 Skin Care 1 (Basic Practices)
COS1070 Manicuring 1

Module Description: Students describe the sectors of the cosmetology industry, as well as current and projected trends, needs, career opportunities, trade ethics and qualifications required for entry into each sector.

Module Learner Expectations: *The student will:*

- identify sectors of the cosmetology industry and the work performed in each sector
- identify and describe the qualifications required for entry into each sector of the industry
- identify and report on current and projected trends in the industry
- demonstrate ethical, interpersonal and communication skills suited to professional cosmetologists
- demonstrate basic competencies.

MODULE COS3020: LONG HAIR GRAPHICS

Level: Advanced

Theme: Hair and Scalp Care

Prerequisite: COS2010 Hair Graphics 2

Module Description: Students design and produce symmetrical and asymmetrical hairstyles to create long hair graphics.

Module Learner Expectations: *The student will:*

- select, design and create a variety of long hair graphics to suit different facial, personality and situational needs
- demonstrate basic competencies.

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MODULE COS3030: HAIR & SCALP CARE 3

Level: Advanced

Theme: Hair and Scalp Care

Prerequisite: COS2020 Hair & Scalp Care 2
COS2030 Forming & Finishing 2

Module Description: Students analyze the condition of the hair and scalp, make treatment decisions and recommendations, and clean and condition the hair and scalp, using available technology.

Module Learner Expectations: *The student will:*

- analyze the hair and scalp, and identify treatable and nontreatable conditions
- make decisions and perform appropriate cleansing and conditioning treatments in a safe and sanitary manner
- demonstrate basic competencies.

MODULE COS3040: HAIR & SCALP CARE 4 (CLIENT SERVICES)

Level: Advanced

Theme: Hair and Scalp Care

Prerequisite: COS3030 Hair & Scalp Care 3
COS2210 Sales & Service 1 (Principles & Practices)

Module Description: Students analyze a client's hair and scalp, make treatment decisions and recommend services, and perform client-approved hair and scalp care services to a client's satisfaction.

Module Learner Expectations: *The student will:*

- analyze hair and scalp, recommend treatment, promote the sale of related services, and perform client-approved hair and scalp care services to a client's satisfaction
- recommend and promote the sale of hair and scalp care products
- demonstrate basic competencies.

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MODULE COS3050: HAIRCUTTING 2

Level: Advanced

Theme: Haircutting

Prerequisite: COS3030 Hair & Scalp Care 3
COS2030 Forming & Finishing 2
COS2040 Haircutting 1

Module Description: Students demonstrate the ability to design and follow cutting patterns, and safely use haircutting and thinning shears, razors and electric clippers.

Module Learner Expectations: *The student will:*

- create a variety of cutting patterns/plans
- follow cutting patterns, and apply principles of elevation to produce a variety of layered/tapered haircuts by selecting and using cutting implements appropriate to the task
- demonstrate basic competencies.

MODULE COS3060: HAIRCUTTING 3 (CLIENT SERVICES)

Level: Advanced

Theme: Haircutting

Prerequisite: COS3030 Hair & Scalp Care 3
COS2030 Forming & Finishing 2
COS3050 Haircutting 2

Module Description: Students analyze hair, scalp, face, haircuts and styles, recommend hairstyles, prepare clients and perform haircutting services.

Module Learner Expectations: *The student will:*

- consult with a client and interpret haircutting needs
- perform safe and sanitary haircutting services for adults and children to their satisfaction
- demonstrate basic competencies.

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MODULE COS3070: HAIR CARE & CUTTING 2 (CLIENT SERVICES)

Level: Advanced

Theme: Haircutting

Prerequisite: COS3060 Haircutting 3 (Client Services)
COS2050 Hair Care & Cutting 1 (Client Services)

Module Description: Students consult with the client to determine services desired, analyze a client's hair and scalp, face and facial features, and recommend and perform client-approved services and treatments to create finished hairstyles.

Module Learner Expectations: *The student will:*

- present a confident and professional appearance and manner when analyzing and meeting a client's needs and promoting the sale of appropriate services and products
- perform a variety of safe and sanitary hair and scalp care and haircutting services agreed to by a client
- demonstrate basic competencies.

MODULE COS3080: PERMANENT WAVING 5 (DESIGNER)

Level: Advanced

Theme: Chemical Services: Permanent Waving

Prerequisite: COS2060 Permanent Waving 2 (Cold Waving)
COS2070 Permanent Waving 3 (Heat-assisted)

Module Description: Students identify and describe designer techniques, processes and implements used to permanently wave hair, complete a chemical process for each designer technique, and describe the advantages and disadvantages of each technique.

Module Learner Expectations: *The student will:*

- identify and interpret the purpose and potential use of alternative designer permanent waving techniques
- analyze each client's permanent waving needs, recommend a pattern/ technique and perform a variety of designer permanent waving techniques
- demonstrate basic competencies.

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MODULE COS3090: RELAX/STRAIGHTEN HAIR

Level: Advanced

Theme: Chemical Services: Permanent Waving

Prerequisite: COS3030 Hair & Scalp Care 3
COS2030 Forming & Finishing 2
COS3080 Permanent Waving 5 (Designer)

Module Description: Students describe the purposes and products available to physically and chemically relax and straighten hair, and identify, describe and practise safe relaxing and straightening techniques.

Module Learner Expectations: *The student will:*

- identify and describe methods, technology, chemicals and other products used to relax or straighten hair and the effect of these services on the hair and scalp
- analyze the hair and scalp to determine their suitability for straightening or relaxing services, determine type of service to offer and products to use, and perform safe and sanitary hair relaxing and straightening procedures
- demonstrate basic competencies.

MODULE COS3100: WAVE, RELAX & STRAIGHTEN HAIR (CLIENT SERVICES)

Level: Advanced

Theme: Chemical Services: Permanent Waving

Prerequisite: COS2060 Permanent Waving 2 (Cold Waving)
COS2070 Permanent Waving 3 (Heat-assisted)
COS3090 Relax/Straighten Hair

Module Description: Students analyze a client's hair and scalp, and recommend appropriate waving, relaxing and straightening services.

Module Learner Expectations: *The student will:*

- consult with and analyze a client's waving, relaxing and straightening needs
- recommend and promote appropriate services and treatments
- perform client-approved services to a client's satisfaction
- demonstrate basic competencies.

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MODULE COS3110: COLOURING 2 (PERMANENT)

Level: Advanced

Theme: Chemical Services: Haircolouring

Prerequisite: COS2020 Hair & Scalp Care 2
COS2030 Forming & Finishing 2
COS2090 Colouring 1

Module Description: Students describe the purposes and principles of permanent haircolouring, identify permanent colouring products, their active ingredients and their effects on the hair and possible effects on the body, and demonstrate skin and strand testing and retouch and whole head colour applications.

Module Learner Expectations: *The student will:*

- identify and describe:
  - purposes, principles and types of permanent haircolouring
  - products available to permanently colour hair
  - product selection, mixing and preparation processes
  - safety practices that must be followed when using permanent haircolours
- perform a variety of permanent haircolouring procedures, including the application of:
  - coating dyes
  - aniline derivative tints
- demonstrate basic competencies.

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MODULE COS3120: COLOUR REMOVAL 2

Level: Advanced

Theme: Chemical Services: Haircolouring

Prerequisite: COS2100 Colour Removal 1
COS3110 Colouring 2 (Permanent)

Module Description: Students analyze the condition of the hair and scalp and the nature of colour in/on hair, and prepare and apply various colour removal products to regrowths and whole heads of hair.

Module Learner Expectations: *The student will:*

- identify and describe the range of colour removal methods, techniques and products available to professional cosmetologists, and the safety and sanitation required before, during and after each colour removal service
- analyze the hair and scalp, and determine their suitability to receive colour removal services
- perform a variety of safe and sanitary colour removal procedures including the use of:
  - bleaches (oil, cream, powder)
  - dye solvents
  - other colour removers
- demonstrate basic competencies.

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MODULE COS3130: COLOURING & REMOVAL 2 (CLIENT SERVICES)

Level: Advanced

Theme: Chemical Services: Haircolouring

Prerequisite: COS2110 Colour & Removal 1 (Client Services)

Module Description: Students analyze the condition of a client's hair and scalp, consult with the client and recommend, prepare for, and perform colouring and colour removal services.

Module Learner Expectations: *The student will:*

- demonstrate competencies related to current haircolouring and colour removal services, including:
  - hair and scalp analysis
  - client consultation
  - service promotion and sales
  - client preparation
  - safe and sanitary colour and colour removal applications
  - pre- and post-conditioning practices, where necessary
  - meeting a client's needs
- demonstrate basic competencies.

MODULE COS3140: BODY THERAPY

Level: Advanced

Theme: Skin Care

Prerequisite: COS2140 Skin Care 2 (Client Services)

Module Description: Students apply available technology to provide therapies (heat, electrical and light), apply principles and practices of body therapy, and apply skin care products to body surfaces.

Module Learner Expectations: *The student will:*

- identify and describe the beauty therapist's role and the therapies and technologies used and their effects on body health and appearance
- apply principles and practices of body therapy and use available technologies to enhance each client's wellness and appearance
- demonstrate basic competencies.

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MODULE COS3150: HAIR REMOVAL

Level: Advanced

Theme: Skin Care

Prerequisite: COS1060 Skin Care 1 (Basic Practices)

Module Description: Students describe temporary and permanent hair removal methods, classify each method as a physical, chemical or electrical procedure, and identify and describe safety and sanitary practices for each procedure.

Module Learner Expectations: *The student will:*

- distinguish between temporary and permanent methods of hair removal and describe the advantages/disadvantages of each method
- distinguish between hairs that may be removed and those that must not be removed
- analyze skin to determine suitability for hair removal service and use physical methods to remove hair in a safe and sanitary manner
- demonstrate basic competencies.

MODULE COS3160: SKIN CARE 3 (CLIENT SERVICES)

Level: Advanced

Theme: Skin Care

Prerequisite: COS2140 Skin Care 2 (Client Services)
COS3150 Hair Removal

Module Description: Students analyze a client's skin and determine skin care needs, consult with the client, and recommend, prepare for, and perform approved skin care services.

Module Learner Expectations: *The student will:*

- welcome and orient the client, analyze skin care needs, recommend and promote the sale of services and products relating to these needs
- prepare the client and perform client-approved safe and sanitary skin care services
- demonstrate basic competencies.

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MODULE COS3170: MALE FACIAL GROOMING 1

Level: Advanced

Theme: Male Facial Grooming

Prerequisite: COS1060 Skin Care 1 (Basic Practices)
COS2040 Haircutting 1

Module Description: Students describe principles and demonstrate practices for male facial grooming, including basic skin care, shaving, moustache/beard shaping, trimming and waxing, and nasal and aural hair removal.

Module Learner Expectations: *The student will:*

- identify and describe the history, purpose and principles of shaving, and the shaping, trimming and waxing of male facial hair
- demonstrate the safe and sanitary handling of implements and technology for male facial grooming and male facial grooming procedures
- demonstrate basic competencies.

MODULE COS3180: MALE FACIAL GROOMING 2 (CLIENT SERVICES)

Level: Advanced

Theme: Male Facial Grooming

Prerequisite: COS3170 Male Facial Grooming 1

Module Description: Students analyze a client's face to determine facial grooming needs, consult with the client, and recommend and perform male facial grooming services, as required.

Module Learner Expectations: *The student will:*

- welcome, orient and consult with and analyze a client's needs for male facial grooming services and products, and recommend and promote the sale of these services and products
- perform client-approved safe and sanitary male facial grooming procedures to a client's satisfaction
- demonstrate basic competencies.

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MODULE COS3190: NAIL TECHNOLOGY

Level: Advanced

Theme: Nail Care

Prerequisite: COS2150 Manicuring 2

Module Description: Students describe causes of nail breakage and damage, demonstrate techniques used to repair damaged nails and apply artificial nails, and describe effects of artificial/sculptured nails on natural nails.

Module Learner Expectations: *The student will:*

- define nail technology and describe current nail technology services and their purpose
- identify, describe and demonstrate the safe and sanitary use of materials and implements associated with nail technology services
- analyze hands and nails and perform a variety of nail technology services; e.g., applying and maintaining:
  - nail tips
  - nail wraps
  - acrylic nails
  - fill-ins
  - gels
- demonstrate basic competencies.

MODULE COS3200: PEDICURING

Level: Advanced

Theme: Nail Care

Prerequisite: COS3010 Professional Practices
COS2150 Manicuring 2

Module Description: Students describe relationships between a manicure and pedicure, and identify and demonstrate a pedicuring procedure, including foot massage.

Module Learner Expectations: *The student will:*

- describe the purpose of pedicuring and the relationship between a manicure and pedicure
- identify and describe the basic structure of feet and the diseases and disorders that may affect feet
- analyze feet, determine their suitability for pedicure services, prepare a pedicure work area, and perform pedicure procedures, including foot massage
- demonstrate basic competencies.

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MODULE COS3210: NAIL CARE (CLIENT SERVICES)

Level: Advanced

Theme: Nail Care

Prerequisite: COS2170 Manicuring 3 (Client Services)
COS3200 Pedicuring

Module Description: Students analyze client hands, feet and nails and determine manicure/pedicure needs, consult with the client and recommend services and products to enhance the condition and appearance of nails, and use available technology to perform manicures/pedicures and related services.

Module Learner Expectations: *The student will:*

- meet, greet and orient a client to available manicure and pedicure services
- consult with a client, analyze tissues of hands and feet, determine nail care needs, and recommend and perform services agreed to by the client in a safe and sanitary manner
- demonstrate basic competencies.

MODULE COS3220: WIGS & TOUPEES

Level: Advanced

Theme: Special Effects/Services

Prerequisite: COS2180 Hairpieces & Extensions

Module Description: Students identify the purpose of wigs and toupees, and factors affecting the quality of wigs and toupees, and demonstrate safe and sanitary procedures used to clean, colour, cut, fit, repair and style wigs and toupees, as well as take head measurements and samples.

Module Learner Expectations: *The student will:*

- explain the reasons why people wear wigs and toupees
- describe different types of wigs and toupees, the advantages/disadvantages of using natural hair/synthetic fibres and related quality factors
- block and secure wigs and hairpieces and perform services (on natural hair and synthetic fibre hair goods), including:
  - cleaning
  - conditioning
  - cutting/shaping
  - forming and finishing
  - minor repairs
  - colouring (temporary, semipermanent)
  - measuring and sampling
- demonstrate basic competencies.

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MODULE COS3230: HAIR GOODS (CLIENT SERVICES)

Level: Advanced

Theme: Special Effects/Services

Prerequisite: COS3220 Wigs & Toupees

Module Description: Students analyze hair goods, make decisions relating to services needed, perform client-approved services to hair goods, and take a client's head measurements in preparation for ordering a custom-made hair good.

Module Learner Expectations: *The student will:*

- analyze a client's hair goods, recommend care, maintenance and enhancement services, promote the sale of hair goods related care and maintenance products
- perform a variety of services to hair goods to ensure that they are maintained and enhanced to a client's satisfaction; measure a client's head and take samples of a client's hair in preparation for ordering a wig or toupee
- demonstrate basic competencies.

MODULE COS3240: THEATRICAL MAKEUP 3 (CHANGING IMAGES)

Level: Advanced

Theme: Special Effects/Services

Prerequisite: COS2190 Theatrical Makeup 2 (Planning the Images)

Module Description: Students identify materials and describe procedures used to construct and apply two- and three-dimensional makeup and prostheses, analyze images of characters and design, and plan and apply theatrical makeup to recreate images of characters.

Module Learner Expectations: *The student will:*

- identify and describe materials and processes used to construct and apply three-dimensional makeup and prostheses
- design and execute plans to change body images of self and/or others by using theatrical makeup, two- and three-dimensional makeup materials and hair goods
- maintain a portfolio of designs created, including details about makeup, prostheses and hair goods used
- demonstrate basic competencies.

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MODULE COS3250: THEATRICAL MAKEUP 4 (CLIENT SERVICES)

Level: Advanced

Theme: Special Effects/Services

Prerequisite: COS3240 Theatrical Makeup 3 (Changing Images)

Module Description: Students provide a client or client group with the theatrical makeup services to create images that are appropriate to different lighting and portrayal conditions.

Module Learner Expectations: *The student will:*

- consult with and assist in providing theatrical makeup services to a client or client group to enhance and to change body images with the aid of two- and three-dimensional makeup and hair goods
- demonstrate basic competencies.

MODULE COS3260: FACIAL & BODY ADORNMENT

Level: Advanced

Theme: Special Effects/Services

Prerequisite: COS3010 Professional Practices

Module Description: Students identify adornments available to enhance or change appearances, describe effects of different adornments, demonstrate safe and sanitary service procedures, and explore alternative forms of body adornment.

Module Learner Expectations: *The student will:*

- identify and describe current fashion trends and fads in facial and body adornment and their purpose
- describe safe and sanitary facial and body adornment procedures; e.g.:
  - attaching/removing false eyelashes
  - colouring eyebrows and lashes
- demonstrate basic competencies.

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MODULE COS3270: CREATIVE COSMETOLOGY

Level: Advanced

Theme: Enterprise and Competition

Prerequisite: COS2200 Historical Cosmetology

Module Description: Students describe current cosmetology-related fashions, fads and trends, and apply design principles to create skin, hair and nail stylings that may become fads or trends.

Module Learner Expectations: *The student will:*

- produce worksheets that describe:
  - current fashion, fads or trends for hair, nail and facial stylings
  - procedures to create each styling
- reproduce each styling, using appropriate resources
- apply design principles to:
  - develop worksheets for creative and innovative hair, makeup and nail stylings
  - produce each styling, using the worksheets as guides
- demonstrate basic competencies.

MODULE COS3280: SALES & SERVICE 2 (EFFECTIVENESS)

Level: Advanced

Theme: Enterprise and Competition

Prerequisite: COS2210 Sales & Service 1 (Principles & Practices)

Module Description: Students distinguish between sales and service techniques that encourage positive client responses and those that evoke negative responses, demonstrate effective sales and service techniques, and identify and demonstrate duties performed by salon receptionists.

Module Learner Expectations: *The student will:*

- design a client survey and develop a client profile that identifies client demographics and level of satisfaction with the salon
- develop and implement a plan to enhance client satisfaction and increase the sale of services and cosmetics and products for personal grooming, and evaluate outcomes of the plan
- demonstrate basic competencies.

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MODULE COS3290: COMPETITION COSMETOLOGY

Level: Advanced

Theme: Enterprise and Competition

Prerequisite:
COS3030 Hair & Scalp Care 3
COS2030 Forming & Finishing 2
COS3050 Haircutting 2
COS3080 Permanent Waving 5 (Designer)
COS3110 Colouring 2 (Permanent)
COS2120 Facials & Makeup 1
COS2150 Manicuring 2
COS2160 Nail Art
COS2180 Hairpieces & Extensions

Module Description: Students identify opportunities to participate in competitions relating to cosmetology, describe the qualities needed to be competitive and the judging systems used at various levels of competitions, and demonstrate ability to be competitive in one or more areas of cosmetology.

Module Learner Expectations: *The student will:*

- identify and describe qualities of a successful competition cosmetologist and methods used to judge competitions
- demonstrate qualities consistent with being a competition cosmetologist
- demonstrate competition standard artistry in one or more cosmetology-related area(s)
- demonstrate basic competencies.

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DESIGN STUDIES

B. STRAND RATIONALE AND PHILOSOPHY

Design is an integral part of our society. It permeates every facet of civilization, sometimes in complex ways, many times quite simply. Everyone designs every day. Design brings a sense of order to our world. Young children in play design physical structures, visual images and systems of organization. Professional designers create these and many other things. Signs, displays, packages, road systems, computer games, furniture, automobiles, clothing, banquets, houses and highrises are a few examples of work produced by professional designers.

Students may not become professional designers, but they still engage in design in some way. Design Studies, a strand in Career and Technology Studies, helps students become aware of design in their environment, engages them in designing, and shows them how design processes may be used in many contexts. Being aware of and appreciating the importance of design helps students become effective members of society.

Design can be described as a "creative problem-solving process, which begins with identifying a specific human need and results, ideally, in a product or situation that improves or enhances some aspect of our lives."★ Design can be both a noun and a verb. As a noun, design can describe a condition, as in the statement ". . . your design shows creativity." As a verb, design suggests a process or problem-solving activity, as in the statement ". . . I need to design a container to carry water." Design Studies students work primarily in the context of design as a verb.

All students are expected to develop problem-solving skills through their school experience. Design Studies deals specifically with solving problems in a variety of contexts, and is limited only by facility or imagination. Design Studies students may be expected to solve visual problems, structural problems and organizational problems using the context of their environment, their other classes and their community experiences. This ability to solve problems will be applied by Design Studies students to situations in their daily lives, in their workplace activities and in post-secondary studies. The theoretical and practical learning of processes, tools and technologies used during Design Studies is relevant, because the learning occurs in context.

There are many reasons for students to engage in Design Studies. For example, students may wish to:

- develop and apply creative abilities and aesthetic awareness
- develop investigative and research skills

★ Definition taken from *What Is Design?* Edmonton, AB: Alberta Culture and Multiculturalism.

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- develop problem-solving abilities
- develop the ability to select an appropriate medium, model a solution and effectively communicate the solution to others
- recognize the importance of design in the human environment, and its impact upon the natural environment
- appreciate the relationship between aesthetics, function, materials and processes
- become aware of the many factors that have to be taken into account in order to achieve appropriate and effective design solutions
- use appropriate technology to arrive at design solutions
- create innovative approaches, products and systems
- recognize significant historical events in design, and describe how they have influenced subsequent design developments
- be better able to pursue a design career.

Design may be studied in its own right or it may be incorporated into other curricula. Key features of Design Studies and other design-based programs are to:

- encourage and facilitate students to be creative, innovative and curious
- teach students to identify and solve many different kinds of design challenges
- incorporate student-directed learning
- teach teamwork strategies and skills
- apply theory within a context
- use technology appropriately and effectively
- teach safe and effective work practices
- appreciate appropriate attitudes, such as pursuing and valuing quality, ethics, professionalism, attention to detail and perseverance and understanding the discipline of design
- encourage cross-curricular links
- reach beyond the school to the community, to create links, projects and contacts with designers, local groups, professionals and businesses.

Within the philosophy of Career and Technology Studies, *students* in Design Studies *will*:

- demonstrate creativity and innovation
- demonstrate aesthetic awareness
- use historical research as one basis for design activity
- identify and solve problems
- work in two and three dimensions
- work individually and as members of a team
- recognize the value of technology, and use it appropriately and effectively
- demonstrate and practise safe and effective work habits and attitudes
- develop and apply personal and interpersonal, verbal and nonverbal communication and presentation skills
- develop the ability to recognize, appreciate and create appropriate design solutions
- appreciate that designers may confront ethical, legal and moral issues in their work
- appreciate that design has an impact upon the environment
- develop a working knowledge of tools, materials and processes associated with specific tasks
- develop and maintain a design journal
- develop and maintain a portfolio of design solutions.

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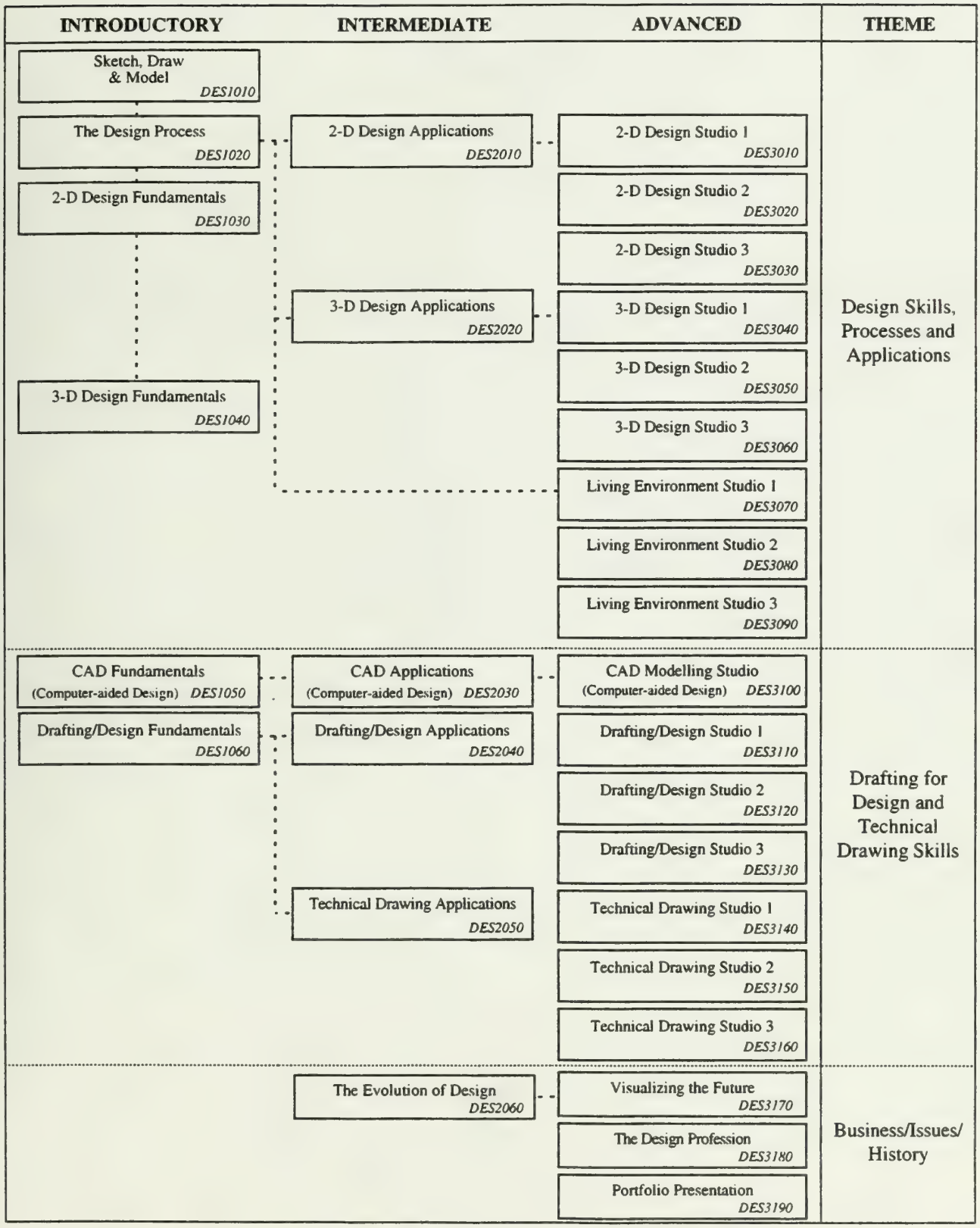
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Sketch, Draw & Model DES1010
The Design Process DES1020
2-D Design Fundamentals DES1030
3-D Design Fundamentals DES1040
2-D Design Applications DES2010
3-D Design Applications DES2020
2-D Design Studio 1 DES3010
2-D Design Studio 2 DES3020
2-D Design Studio 3 DES3030
3-D Design Studio 1 DES3040
3-D Design Studio 2 DES3050
3-D Design Studio 3 DES3060
Living Environment Studio 1 DES3070
Living Environment Studio 2 DES3080
Living Environment Studio 3 DES3090
Design Skills, Processes and Applications
CAD Fundamentals (Computer-aided Design) DES1050
Drafting/Design Fundamentals DES1060
CAD Applications (Computer-aided Design) DES2030
Drafting/Design Applications DES2040
Technical Drawing Applications DES2050
CAD Modelling Studio (Computer-aided Design) DES3100
Drafting/Design Studio 1 DES3110
Drafting/Design Studio 2 DES3120
Drafting/Design Studio 3 DES3130
Technical Drawing Studio 1 DES3140
Technical Drawing Studio 2 DES3150
Technical Drawing Studio 3 DES3160
Drafting for Design and Technical Drawing Skills
The Evolution of Design DES2060
Visualizing the Future DES3170
The Design Profession DES3180
Portfolio Presentation DES3190
Business/Issues/ History
Prerequisite
Recommended sequence

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE DES1010: SKETCH, DRAW & MODEL

Level: Introductory

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students are introduced to observational sketching and drawing, and modelling, and to a selection of materials and tools and their uses. Students also develop skills that can be used and enhanced in further design activity.

Module Learner Expectations: *The student will:*

- sketch, manually, and draw and model, natural and manufactured three-dimensional forms
- use manual sketching/drawing and modelling materials, and tools effectively
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES1020: THE DESIGN PROCESS

Level: Introductory

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students begin this process-based activity by developing an understanding of the problem through research. They then develop possible solutions, working through them to arrive at a final, appropriate solution.

Module Learner Expectations: *The student will:*

- identify a design process and apply it throughout the instructional period
- produce a designed solution
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES1030: 2-D DESIGN FUNDAMENTALS

Level: Introductory

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students develop skills and techniques appropriate to two-dimensional design by engaging in a variety of activities in various contexts. Techniques may include drawing, layout, use of tools and equipment appropriate to two-dimensional design, cutting, joining, measuring and use of notations.

Module Learner Expectations: *The student will:*

- identify and practise two-dimensional design techniques; e.g., layout, use of grids, use of typography
- identify and use materials and tools common to two-dimensional design; e.g., card, cutting tools, computer graphics packages
- identify, select and use elements and principles of design in project activities
- use two-dimensional design techniques to solve simple design problems; e.g., advertisement layout, greeting cards, sign, poster, package graphics
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES1040: 3-D DESIGN FUNDAMENTALS

Level: Introductory

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students develop skills and techniques appropriate to three-dimensional design by engaging in a variety of activities in various contexts. Techniques may include drawing, modelling, use of tools and equipment appropriate to three-dimensional design, cutting, joining, measuring and use of notations.

Module Learner Expectations: *The student will:*

- identify and practise three-dimensional design techniques; e.g., cutting, joining, manipulating
- identify and use materials and tools common to three-dimensional design; e.g., cardboard, plastic, wood, styrofoam, wire, modelling clay
- identify, select and use elements and principles of design in project activities
- use three-dimensional design techniques to solve simple design problems; e.g., simple bridging structures, container, pencil holder
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES1050: CAD FUNDAMENTALS (COMPUTER-AIDED DESIGN)

Level: Introductory

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students develop basic knowledge and skills in computer-aided design (CAD).

Module Learner Expectations: *The student will:*

- demonstrate basic knowledge and skills required to operate CAD software
- use CAD to produce and print/plot a multiview drawing and/or pictorial drawing and/or surface development
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES1060: DRAFTING/DESIGN FUNDAMENTALS

Level: Introductory

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students develop basic knowledge, skills and techniques to draft appropriate drawings for visualizing and illustrating simple design problems.

Module Learner Expectations: *The student will:*

- produce pictorial representations and multiview drawings from sketches and/or three-dimensional objects

  OR

- produce pictorial representations and surface developments for items in context; e.g., garments, sheet metal fabrication, packaging
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE DES2010: 2-D DESIGN APPLICATIONS

Level: Intermediate

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students apply the design process and other knowledge, skills and processes learned at the introductory level to two-dimensional design projects. Projects in this module typically deal with communication problems and issues. Students take greater responsibility for managing their learning and learn to work cooperatively with others.

Module Learner Expectations: *The student will:*

- plan and produce solutions to intermediate level two-dimensional design briefs
- use, effectively, the elements and principles of design
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES2020: 3-D DESIGN APPLICATIONS

Level: Intermediate

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students apply the design process and other knowledge, skills and processes learned at the introductory level to three-dimensional design projects. Projects in this module typically deal with problems and issues related to product design. Students take greater responsibility for managing their learning and learn to work cooperatively with others.

Module Learner Expectations: *The student will:*

- plan and produce solutions to intermediate level three-dimensional design briefs
- use, effectively, the elements and principles of design
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES2030: CAD APPLICATIONS (COMPUTER-AIDED DESIGN)

Level: Intermediate

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students apply their previous learnings, and add knowledge, skills and techniques associated with computer-aided design (CAD) to the context of new design-related tasks.

Module Learner Expectations: *The student will:*

- use CAD software to produce and print/plot intermediate level multiview and/or pictorial drawings and/or surface developments
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES2040: DRAFTING/DESIGN APPLICATIONS

Level: Intermediate

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students learn skills in assembly, section and/or auxiliary drawing. They further develop the knowledge, skills and techniques; e.g., pictorial drawings, multiview drawings, surface developments (flat patterns), and by applying them in the context of more complex design projects.

Module Learner Expectations: *The student will:*

- produce pictorial drawings; e.g., isometric, oblique, one- and two-point perspective, using rendering styles and techniques; e.g., pencil, ink, colour, computer generated, within the context of design projects
- produce at least two types of drawings chosen from assembly, section or auxiliary, either manually or with the aid of a computer
- produce dimensioned multiview drawings, either manually or with the aid of a computer

  OR
- produce surface developments for items; e.g., garments, sheet metal, packaging, manually or with the aid of a computer
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES2050: TECHNICAL DRAWING APPLICATIONS

Level: Intermediate

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students develop accurate multiview drawings from previously produced sketches, and learn the common understandings, conventions and language associated with technical drawing.

Module Learner Expectations: *The student will:*

- produce technical drawings for simple structures, products and/or components
- dimension and notate drawings accurately
- identify and include to all pertinent codes and specifications as they apply to drawings produced
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES2060: THE EVOLUTION OF DESIGN

Level: Intermediate

Theme: Business/Issues/History

Prerequisite: None

Module Description: Students develop a historical framework for the importance and relevance of design within a cultural context, by examining past and contemporary examples of designed artifacts.

Module Learner Expectations: *The student will:*

- demonstrate knowledge of historical and contemporary design resources
- make a formal presentation of research findings
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE DES3010: 2-D DESIGN STUDIO 1

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students apply theories, skills and techniques of organization of the visual image onto the two-dimensional format, to resolve complex design problems. Emphasis is placed on exploring form, composition and aesthetics of communication design solutions.

Module Learner Expectations: *The student will:*

- produce advanced level designed solutions for two-dimensional design problems
- apply elements and principles of design to two-dimensional design compositions
- make rational judgements for achieving aesthetic quality in two-dimensional design solutions
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3020: 2-D DESIGN STUDIO 2

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students investigate the impact, importance and influence of two-dimensional design within a cultural context and the social responsibility of the designer, and apply this information when resolving complex communication design problems.

Module Learner Expectations: *The student will:*

- produce advanced level designed solutions for two-dimensional communication design problems
- identify examples of effective and ineffective two-dimensional designs
- identify human factors commonly affected by two-dimensional design solutions and accommodate these within designed solutions
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3030: 2-D DESIGN STUDIO 3

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students explore the production processes of two-dimensional design and the role of the designer as an organizer of appropriate materials, processes and systems. This understanding is applied in the resolution of complex two-dimensional design problems.

Module Learner Expectations: *The student will:*

- produce advanced level designed solutions for two-dimensional design problems involving materials and production processes
- select materials based on their properties and justify their use in the context of two-dimensional design; e.g., what works in a given situation to achieve a desired affect
- design and/or select and use a process to reproduce a two-dimensional product in quantity
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3040: 3-D DESIGN STUDIO 1

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students deal with such aspects as shaping, massing, proportion, scale, contrast, colour, texture and finish within the context of complex three-dimensional design projects.

Module Learner Expectations: *The student will:*

- produce advanced level designed solutions for three-dimensional design problems
- use elements, principles and considerations common to three-dimensional compositions
- use various materials, and the required processes to shape and join such materials, and to create desired forms
- demonstrate familiarity with symbolic and cultural connotations of design, and make aesthetic judgements about design solutions generated
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3050: 3-D DESIGN STUDIO 2

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students are introduced to human factors, principles and considerations; e.g., ergonomics, semantics and semiotics.

Module Learner Expectations: *The student will:*

- apply human factors, principles and considerations; i.e., physical, auditory, visual, when designing, which results in a three-dimensional product for human use
- explain the relationships among the application of human factors, principles and considerations and the articulation (system, sequence) of a product design
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3060: 3-D DESIGN STUDIO 3

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students expand their knowledge of materials, technologies and production/processes employed to shape and join materials and assemble products. Students become familiar with principles of manufacturing, and materials, technologies and processes appropriate to manufacturing a product in various production quantities.

Module Learner Expectations: *The student will:*

- use materials, technologies and production processes relevant to a particular area of three-dimensional design to produce a product
- apply appropriate materials and processes to form, shape, join, fasten, assemble and/or construct with various materials based on their properties on advanced level three-dimensional project
- describe the relationship among materials, production processes and intended production quantities, and the manner in which a product is designed
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3070: LIVING ENVIRONMENT STUDIO 1

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students learn to develop appropriate architectural, environmental or interior design solutions for specific human needs. Students also learn to use design methodology and teamwork in the development of such solutions.

Module Learner Expectations: *The student will:*

- produce creative designed solutions based in architectural, environmental and/or interior design, that address human and/or environmental needs
- use elements, principles and processes of design to deal with identified human and/or environmental needs within design solutions
- describe how human and environmental requirements affect design
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3080: LIVING ENVIRONMENT STUDIO 2

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students learn to consider form and space when developing specific architectural, environmental or interior design solutions specific to human and/or environmental needs. They assess solutions on the basis of functional and aesthetic considerations and appropriateness within the human environment. Materials and production processes may be considered at this stage though not necessarily resolved. When designing at the micro level, students consider the ergonomic aspects of design.

Module Learner Expectations: *The student will:*

- produce advanced level designed solutions for problems in one or more living environment themes: architectural design, environmental design, interior design
- apply elements and principles of design; e.g., space, form, and ergonomics within architectural, environmental and/or interior design
- make rational judgements with respect to aesthetic quality in architectural, environmental or interior design
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3090: LIVING ENVIRONMENT STUDIO 3

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students develop design solutions specific to architectural, environmental or interior design, and learn about using and/or specifying appropriate materials and production processes.

Module Learner Expectations: *The student will:*

- use appropriate materials and production processes to resolve set design problems
- identify materials and products used in architectural, environmental and/or interior design, and give reasons for their use based on their properties
- identify and/or specify production processes, and/or methods of manufacturing products common to architectural, environmental and/or interior design
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3100: CAD MODELLING STUDIO (COMPUTER-AIDED DESIGN)

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students solve design problems, using advanced computer-aided design (CAD) methods, advanced commands, three-dimensional modelling techniques, rendering, shading and animation techniques.

Module Learner Expectations: *The student will:*

- use advanced CAD commands and techniques to design working prototypes of solutions to advanced level design problems
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3110: DRAFTING/DESIGN STUDIO 1

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students concentrate on various drawing and drafting types to illustrate design concepts and solutions, including freehand drawings, illustrative views, isometric drawings, perspective drawings, axiometric drawings, surface developments (flat pattern). This is a skill-building module with the emphasis on line drawing.

Module Learner Expectations: *The student will:*

- use freehand and mechanical and/or computer-aided drafting techniques to produce solutions for complex projects in areas such as architecture, fashion, product, furniture and/or other design applications
- apply various drawing construction principles to produce pictorial drawings; e.g., isometric, perspective and axiometric
- apply design detailing, and make rational judgements with respect to proportion, scale, composition, codes and standards
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3120: DRAFTING/DESIGN STUDIO 2

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students develop complex explanatory drawings from base (line) drawings, that may include exploded views, cut-aways, revolutions, sectional, and shadow and reflection construction. This is a skill-building module with the emphasis on explanatory line drawings.

Module Learner Expectations: *The student will:*

- use explanatory drawing techniques; e.g., exploded views, cut-away views, shadow and reflection construction, to convey and communicate complex design solutions
- use appropriate drawing techniques to illustrate principles of assembly, such as mechanical function, usage
- use principles of communication through illustrative drawing and detailing; e.g., attention to the composition of exploded views, optimizing location of cut-away sections
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3130: DRAFTING/DESIGN STUDIO 3

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students apply rendering techniques to line drawings (base or developed), concentrating on light, colour and various media; e.g., coloured pencils, marker pens, water colours, computer rendered. Presentation techniques are used to compose high quality illustrations to communicate design solution, such as rendered drawings, context backgrounds, collage and montage techniques, titles, text.

Module Learner Expectations: *The student will:*

- use various rendering techniques and media to create high quality visual representations of design solutions
- create well-composed presentations of design solutions, using a combination of materials and methods, such as rendered drawings, photographs, text, theme boards, CAD, video
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3140: TECHNICAL DRAWING STUDIO 1

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students produce sections, elevations and auxiliary drawings, and build upon their learnings from the intermediate level. Students may use previously produced sketches and multiview drawings as a basis for further work.

Module Learner Expectations: *The student will:*

- produce detailed section, elevation and auxiliary views for fabrication, manufacturing and/or construction
- identify and use codes, specifications and conventions as they apply in the drawings produced
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3150: TECHNICAL DRAWING STUDIO 2

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students identify and specify details of various product components with a focus on representations of developments; e.g., sheet metal flashing, clothing patterns, and on intersections; e.g., the intersection of two heating ducts.

Module Learner Expectations: *The student will:*

- produce surface developments and intersections for fabricating, constructing and/or manufacturing
- produce drawings for different applications, such as heating ducting, tent manufacturing, outerwear manufacturing, and different materials; e.g., sheet metal, plastic, canvas, wool
- identify and use codes, specifications and conventions as they apply in the drawings produced
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3160: TECHNICAL DRAWING STUDIO 3

Level: Advanced

Theme: Drafting for Design and Technical Drawing Skills

Prerequisite: None

Module Description: Students diagram and illustrate the design specifications for a product, structure and/or process as a basis for fabrication, manufacturing and/or construction. They complete a set of working drawings for a self-generated or teacher-specified designed item.

Module Learner Expectations: *The student will:*

- produce a complete set of working drawings for a student-generated or teacher-specified designed item
- identify and use codes, specifications and conventions as they apply in the drawings produced
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3170: VISUALIZING THE FUTURE

Level: Advanced

Theme: Business/Issues/History

Prerequisite: None

Module Description: Students explore new possibilities in design, including the role of the designer and the challenges that are faced by the designers.

Module Learner Expectations: *The student will:*

- identify a potential design challenge; e.g., a habitat for a space colony, and design a solution for it
- provide research supporting the design solution
- select, organize and present design projects
- demonstrate basic competencies.

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MODULE DES3180: THE DESIGN PROFESSION

Level: Advanced

Theme: Business/Issues/History

Prerequisite: None

Module Description: Students develop an understanding of the business aspect of the design profession, including educational qualifications, opportunities in design and some of the issues and challenges designers face. Ethical, legal and social issues may also be explored.

Module Learner Expectations: *The student will:*

- conduct research in one area of the business/profession of design
- identify and consider various issues faced by designers
- select, organize and present design projects
- demonstrate basic competencies.

MODULE DES3190: PORTFOLIO PRESENTATION

Level: Advanced

Theme: Business/Issues/History

Prerequisite: None

Module Description: Students prepare a presentation portfolio for a specific purpose, such as entry into the workplace or a post-secondary institution.

Module Learner Expectations: *The student will:*

- prepare a presentation portfolio for the purpose of gaining entry into the workplace and/or a post-secondary educational institution
- present the portfolio in an interview setting
- demonstrate basic competencies.

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ELECTRO-TECHNOLOGIES

B. STRAND RATIONALE AND PHILOSOPHY

Electro-Technologies, a strand in Career and Technology Studies, focuses on having students gain an understanding of electrical/electronic systems and subsystems. Students are motivated to learn by studying electrical/electronic systems in an activity-oriented environment. The strand is an excellent vehicle for students to acquire knowledge, skills and attitudes needed to adapt to a rapidly changing and expanding technological world.

Electro-Technologies enables students to problem solve system applications by working at a systems level before focusing on specific fundamentals. Once the concepts are established, the ideas are integrated and contextualized to create real applications.

The Electro-Technologies strand provides students with practical experiences related to the electrical/electronics industry. Within the philosophy of Career and Technology Studies, *students* in Electro-Technologies *will*:

- exercise safe work and environmental practices
- develop electro-technology literacy
- demonstrate the ability to interface various electrical/electronic components and systems
- develop problem-solving, design and decision-making skills
- develop relevant applied mathematics skills, using algebra, trigonometry and geometry
- use scientific calculators and engineering notations
- demonstrate established procedures of operation as practised in the electrical/electronics industry
- demonstrate understanding of the use of software and hardware in the study of electrical/electronic systems
- develop the necessary skills and techniques to fabricate, modify and troubleshoot electrical/electronic systems and components
- demonstrate proficient use of test equipment
- demonstrate the differences between power, control, audio and digital systems
- develop basic competencies and skills that transfer to daily lives and career options
- develop leadership and teamwork skills
- develop knowledge, skills and attitudes required for the workplace and further education.

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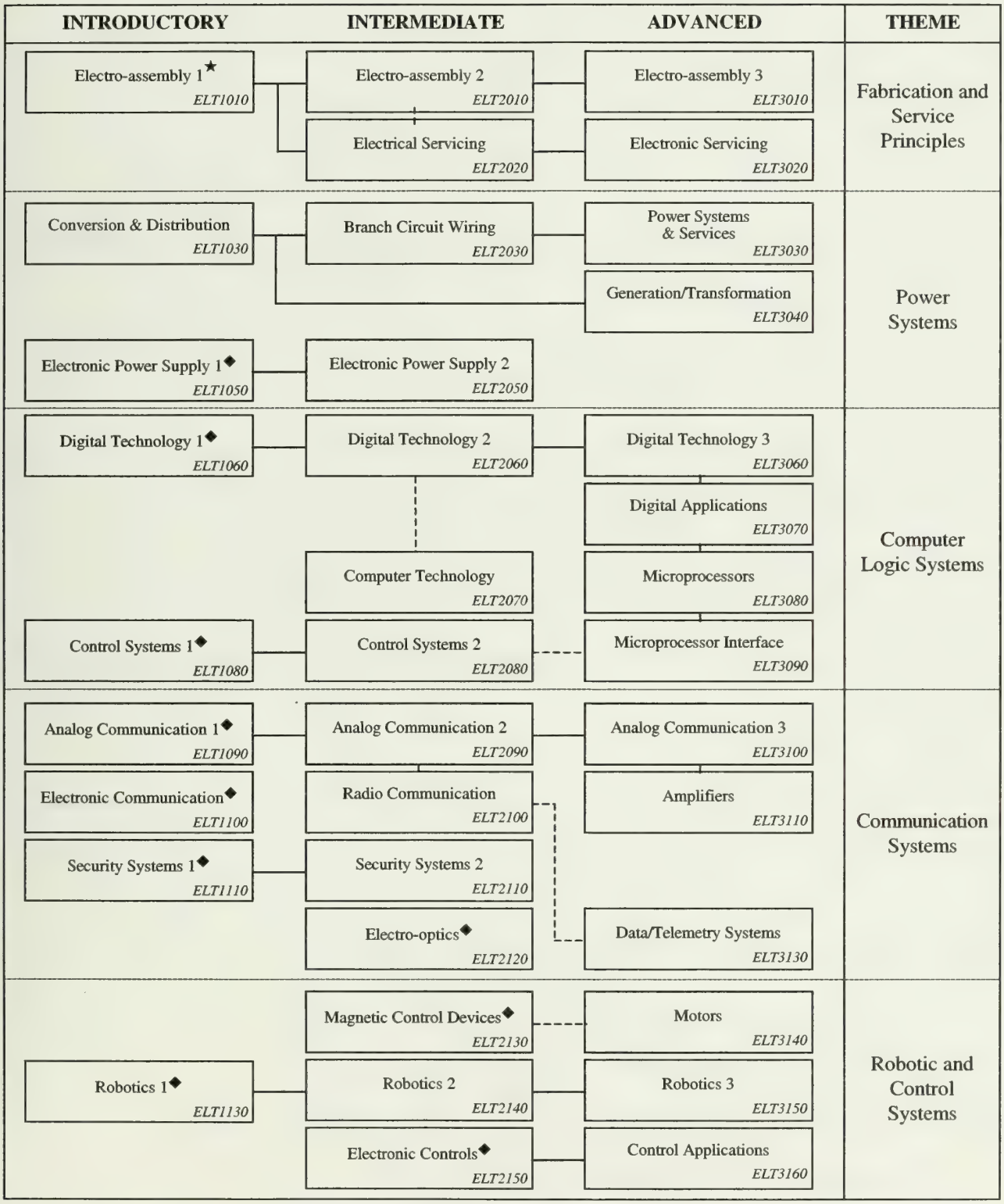
SCOPE AND SEQUENCE



——— Prerequisite ----- Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

◆ Refer to specific courses for additional prerequisites.

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE ELT1010: ELECTRO-ASSEMBLY 1

Level: Introductory

Theme: Fabrication and Service Principles

Prerequisite: None

Description: Students apply basic fabricating and servicing techniques to construct and test electronic and electromagnetic devices and cables.

General Outcomes: *The student will:*

- apply the appropriate fabrication techniques, including proper soldering and component assembly procedures, to construct and test a simple electronic circuit
- apply the appropriate fabrication techniques to construct and test an electromagnetic device
- identify and assemble common electrical/electronic cables and connectors used in power, audio and video connections
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT1030: CONVERSION & DISTRIBUTION

Level: Introductory

Theme: Power Systems

Prerequisite: None

Description: Students experiment and work with principles of electrical energy conversion and distribution.

General Outcomes: *The student will:*

- identify and describe methods of converting nonrenewable and renewable sources of energy into electricity
- construct an electrical distribution system
- demonstrate how mechanical, chemical, light and heat energy can be converted into electrical energy
- determine the cost efficiency, practicality and environmental impact of producing electricity from various sources of energy
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT1050: ELECTRONIC POWER SUPPLY 1

Level: Introductory

Theme: Power Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students construct different types of alternating and direct current power supplies, and demonstrate their application in electrical/electronic systems.

General Outcomes: *The student will:*

- identify and describe various types of alternating and direct current power supplies
- construct a simple power supply
- test a regulated, filtered power supply for output characteristics
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT1060: DIGITAL TECHNOLOGY 1

Level: Introductory

Theme: Computer Logic Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students construct and demonstrate logic systems and their unique functions.

General Outcomes: *The student will:*

- describe the binary numbering system and logic gates
- construct and verify basic logic gates
- construct a simple logic circuit, and explain its functions
- identify the major integrated circuit (IC) families, and describe their unique functions
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT1080: CONTROL SYSTEMS 1

Level: Introductory

Theme: Computer Logic Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students construct process control systems, demonstrate their basic operation, and demonstrate procedures for testing them.

General Outcomes: *The student will:*

- identify how control systems are used in residential and commercial applications
- identify basic process control systems, and explain how they function
- construct basic process control circuits, using passive devices
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT1090: ANALOG COMMUNICATION 1

Level: Introductory

Theme: Communication Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students install and demonstrate the fundamentals of various consumer audio integrated systems.

General Outcomes: *The student will:*

- distinguish the difference between terms and specifications used in analog audio systems
- install a functional audio system according to a given set of specifications
- service and maintain a consumer audio system
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT1100: ELECTRONIC COMMUNICATION

Level: Introductory

Theme: Communication Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students demonstrate the fundamentals of video systems, and describe their uses.

General Outcomes: *The student will:*

- describe and compare the operating principles of coaxial cable television (CCTV) and cable television (CATV) video systems
- describe and compare various video formats
- assemble and install connectors associated with video cable network and video electronic systems
- explain the operation of an analog-modulated video system
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT1110: SECURITY SYSTEMS 1

Level: Introductory

Theme: Communication Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students install and demonstrate the fundamentals of sensors, control units and warning devices used in security systems.

General Outcomes: *The student will:*

- identify and compare different electronic systems used to secure people, property and information
- describe and compare hardwired sensors
- install and test a security system, evaluate circuit performance, and identify possible maintenance requirements
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT1130: ROBOTICS 1

Level: Introductory

Theme: Robotic and Control Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students apply the fundamentals of robotic systems and basic robotic functions.

General Outcomes: *The student will:*

- describe the evolution and applications of robotic systems
- identify and classify robotic systems and subsystems
- design and build a direct control robotic system
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE ELT2010: ELECTRO-ASSEMBLY 2

Level: Intermediate

Theme: Fabrication and Service Principles

Prerequisite: ELT1010 Electro-assembly 1

Description: Students apply electro-assembly technology to manufacture circuit boards.

General Outcomes: *The student will:*

- identify appropriate construction methods to fabricate a circuit board
- lay out and construct a simple electronic circuit board, using approved construction techniques
- use a PC board and proper fabrication techniques to assemble a project
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2020: ELECTRICAL SERVICING

Level: Intermediate

Theme: Fabrication and Service Principles

Prerequisite: ELT1010 Electro-assembly 1

Description: Students demonstrate the fundamental concepts of repairing, servicing and maintaining electrical and electronic equipment.

General Outcomes: *The student will:*

- develop a basic repair and maintenance schedule for an electrical/electronic device
- identify faults in an electrical/electronic device, and propose solutions for repair
- use appropriate testing procedures to assess/repair an electrical/electronic device
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT2030: BRANCH CIRCUIT WIRING

Level: Intermediate

Theme: Power Systems

Prerequisite: ELT1030 Conversion & Distribution

Description: Students demonstrate the fundamentals of branch circuit wiring used in residential/commercial buildings.

General Outcomes: *The student will:*

- identify and describe various branch wiring systems used in residential and commercial applications
- apply Canadian Electrical Code (CEC) standards to various branch wiring system designs
- wire a branch circuit for a residential application
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2050: ELECTRONIC POWER SUPPLY 2

Level: Intermediate

Theme: Power Systems

Prerequisite: ELT1050 Electronic Power Supply 1

Description: Students construct and demonstrate the fundamentals of electronic power supply technology.

General Outcomes: *The student will:*

- construct, analyze and evaluate single-phase rectifiers
- observe and test the voltage and waveform of a switching power supply
- build and analyze the characteristics of a power supply regulated by a zener transistor
- build, test and analyze filtering circuits used in electronic power supplies
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT2060: DIGITAL TECHNOLOGY 2

Level: Intermediate

Theme: Computer Logic Systems

Prerequisite: ELT1060 Digital Technology 1

Description: Students demonstrate knowledge of digital principles, by using small-scale transistor–transistor logic (TTL) and complementary metal oxide semiconductor (CMOS) integrated technology.

General Outcomes: *The student will:*

- identify and interface components with TTL and CMOS small-scale integrated circuit (IC) families
- identify components and construct a prototype of typical small-scale and complex logic networks, using TTL and CMOS families of ICs
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2070: COMPUTER TECHNOLOGY

Level: Intermediate

Theme: Computer Logic Systems

Prerequisite: None

Description: Students develop the knowledge and skills required to install and configure a disc operating system and to set up a computer network.

General Outcomes: *The student will:*

- disassemble/assemble a working computer, and perform basic troubleshooting procedures
- identify and explain computer system components
- install and configure a disk operating system
- set up a computer network
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT2080: CONTROL SYSTEMS 2

Level: Intermediate

Theme: Computer Logic Systems

Prerequisite: ELT1080 Control Systems 1

Description: Students demonstrate how process control technology is used in real-world applications.

General Outcomes: *The student will:*

- identify discrete components used in process control
- identify and describe analog and sensor components used in process control
- construct a process control device, using analog and sensor components
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2090: ANALOG COMMUNICATION 2

Level: Intermediate

Theme: Communication Systems

Prerequisite: ELT1090 Analog Communication 1

Description: Students demonstrate the fundamental concepts of electronic analog communication systems.

General Outcomes: *The student will:*

- identify characteristics of analog communication systems
- explain analog communication technology through project design, construction, experimentation, circuit analysis and electronic component identification
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT2100: RADIO COMMUNICATION

Level: Intermediate

Theme: Communication Systems

Prerequisite: ELT1090 Analog Communication 1
ELT2090 Analog Communication 2

Description: Students demonstrate the fundamental concepts of electromagnetic communication systems.

General Outcomes: *The student will:*

- describe the principles of electromagnetic communication systems
- construct and test electromagnetic communication systems
- explain wireless communication technology through project construction, experimentation, circuit analysis and electronic component identification of oscillation amplification and detection
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2110: SECURITY SYSTEMS 2

Level: Intermediate

Theme: Communication Systems

Prerequisite: ELT1110 Security Systems 1

Description: Students demonstrate the fundamentals of security technology used in homes, businesses and transportation systems.

General Outcomes: *The student will:*

- identify and describe elements of a security system
- identify detection and notification devices
- fabricate and operate a detection and notification alarm system for home or car use
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT2120: ELECTRO-OPTICS

Level: Intermediate

Theme: Communication Systems

Prerequisite: ELT2100 Radio Communication

Description: Students demonstrate basic knowledge of lasers and other light wave communication applications in various electronic systems.

General Outcomes: *The student will:*

- identify common types and classes of lasers
- explain the operation of laser, fibre optic, infrared and hologram light wave technology
- construct an electro-optical project
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2130: MAGNETIC CONTROL DEVICES

Level: Intermediate

Theme: Robotic and Control Systems

Prerequisite: ELT1010 Electro-assembly 1

Description: Students demonstrate the fundamentals of electromagnetic control devices.

General Outcomes: *The student will:*

- identify and state the function of electromagnetic control devices
- explain the operation of electromagnetically controlled systems
- design and construct electromagnetic circuits, using ladder logic systems and wiring diagrams
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT2140: ROBOTICS 2

Level: Intermediate

Theme: Robotic and Control Systems

Prerequisite: ELT1130 Robotics 1

Description: Students demonstrate the fundamental concepts of sensor devices and control systems, by building an electronic circuit to control a direct wire or mobile robot.

General Outcomes: *The student will:*

- design and build a sensor device and control system for the robotic system
- identify sensor control systems and subsystems used in robotic systems
- explain sensory control circuits and components used in the robotic control system
- operate and demonstrate the capabilities of a robotic system equipped with sensor controls
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT2150: ELECTRONIC CONTROLS

Level: Intermediate

Theme: Robotic and Control Systems

Prerequisite: ELT2130 Magnetic Control Devices

Description: Students demonstrate the fundamentals of ladder/relay logic programming, and demonstrate how the program's logic controller system operates.

General Outcomes: *The student will:*

- explain basic input and output hardware and fundamentals of basic programming in programmable logic controller systems
- write a basic programming logic code, through real or programmed inputs on a programmable logic system, to operate and control electromagnetic devices
- wire, operate and test a programmable electromagnetic device
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE ELT3010: ELECTRO-ASSEMBLY 3

Level: Advanced

Theme: Fabrication and Service Principles

Prerequisite: ELT2010 Electro-assembly 2

Description: Students apply photographic processes to construct a printed circuit for an electronic project.

General Outcomes: *The student will:*

- identify three photographic printed circuit (PC) board construction methods
- design or modify a board layout to be used for photographic PC board construction
- construct a PC board, using a photographic method
- assemble a project, using a PC board
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT3020: ELECTRONIC SERVICING

Level: Advanced

Theme: Fabrication and Service Principles

Prerequisite: ELT2020 Electrical Servicing

Description: Students develop and apply basic processes and skills to service and repair consumer-based electronic products.

General Outcomes: *The student will:*

- use a block diagram to show the function and the stages of operation of an electronic device
- identify system faults, and propose solutions to service and repair various digital and analog consumer products
- use standard, safe practices to service/repair an electronic component or device
- create a profile of a trade or occupation within the field of electronic servicing
- demonstrate basic competencies.

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COURSE ELT3030: POWER SYSTEMS & SERVICES

Level: Advanced

Theme: Power Systems

Prerequisite: ELT2030 Branch Circuit Wiring

Description: Students construct, operate, analyze and evaluate various single-phase and three-phase power systems and services.

General Outcomes: *The student will:*

- follow established, safe laboratory procedures and practices when working with three-phase systems
- construct and analyze a three-wire, single-phase electrical system
- analyze common reluctance inductance (RLC) vector diagrams
- construct and analyze three-wire, three-phase and four-wire, three-phase wye systems
- construct and analyze three-wire, three-phase delta systems
- create a profile of a trade or occupation within the field of power systems and services
- demonstrate basic competencies.

COURSE ELT3040: GENERATION/TRANSFORMATION

Level: Advanced

Theme: Power Systems

Prerequisite: ELT1030 Conversion & Distribution

Description: Students operate, experiment with and analyze alternators and transformers used in power generation and distribution.

General Outcomes: *The student will:*

- explain the principles of operation of electrical components used in safety devices
- set up and operate three-phase low voltage alternators in no load and load conditions
- explain the operational and loading parameters for alternators
- operate a low voltage alternator in parallel with another alternator(s)
- describe the operating principles of single-phase transformers
- identify fundamental loading characteristics of single-phase transformers
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT3060: DIGITAL TECHNOLOGY 3

Level: Advanced

Theme: Computer Logic Systems

Prerequisite: ELT2060 Digital Technology 2

Description: Students demonstrate knowledge of digital principles by using medium-scale transistor–transistor logic (TTL) and complementary metal oxide semiconductor (CMOS) integrated technology.

General Outcomes: *The student will:*

- identify, interface and experiment with medium-scale integrated circuit (IC) families
- identify components, construct a prototype and experiment with typical medium-scale logic networks
- demonstrate established laboratory procedures and safe work practices
- create a profile of a trade or occupation within the field of digital technology
- demonstrate basic competencies.

COURSE ELT3070: DIGITAL APPLICATIONS

Level: Advanced

Theme: Computer Logic Systems

Prerequisite: ELT3060 Digital Technology 3

Description: Students experiment with large-scale and very large-scale integrated circuits, and demonstrate their applications to practical situations.

General Outcomes: *The student will:*

- identify applications and develop prototypes of large-scale integrated circuits
- troubleshoot a digital system or prototype with digital equipment
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT3080: MICROPROCESSORS

Level: Advanced

Theme: Computer Logic Systems

Prerequisite: ELT3070 Digital Applications

Description: Students compare the internal architecture of microprocessors and program them, using instruction sets.

General Outcomes: *The student will:*

- compare the internal architecture of various families of microprocessors
- program a microprocessor, using instruction sets
- describe input/output operations in microprocessors
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT3090: MICROPROCESSOR INTERFACE

Level: Advanced

Theme: Computer Logic Systems

Prerequisite: ELT3080 Microprocessors

Description: Students demonstrate how to interface microprocessors/microcontrollers with real-world applications.

General Outcomes: *The student will:*

- describe microprocessor interface output and input circuits
- explain the operation of a serial interface device
- interface a digital-to-analog (D/A) and analog-to-digital (A/D) converter to a microprocessor
- connect a microprocessor to a sensor device used in home, industrial and/or transportation applications
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT3100: ANALOG COMMUNICATION 3

Level: Advanced

Theme: Communication Systems

Prerequisite: ELT2090 Analog Communication 2

Description: Students demonstrate the principal concepts of electronic analog communication systems.

General Outcomes: *The student will:*

- identify and demonstrate applications of analog communication
- explain differences between analog communication circuit applications used in telephone systems and consumer audio equipment
- demonstrate established laboratory procedures and safe work practices
- create a profile of a trade or occupation within the field of analog communication
- demonstrate basic competencies.

COURSE ELT3110: AMPLIFIERS

Level: Advanced

Theme: Communication Systems

Prerequisite: ELT3100 Analog Communication 3

Description: Students demonstrate knowledge of various types and classes of amplifiers.

General Outcomes: *The student will:*

- explain the differences among various types and classes of amplifiers
- construct, analyze and test amplifier circuits and components
- maintain, test and troubleshoot a power amplifier
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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COURSE ELT3130: DATA/TELEMETRY SYSTEMS

Level: Advanced

Theme: Communication Systems

Prerequisite: None

Description: Students demonstrate the fundamentals of various data/telemetry systems, and demonstrate their applications to the real world.

General Outcomes: *The student will:*

- distinguish the difference between analog and digital carriers with voice or data transmission
- explain data/telemetry communication through experimentation, circuit analysis and project work
- construct a voice or data transmission network
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

COURSE ELT3140: MOTORS

Level: Advanced

Theme: Robotic and Control Systems

Prerequisite: None

Description: Students demonstrate knowledge of electric motor operation and loading characteristics.

General Outcomes: *The student will:*

- explain electromotive principles as applied to direct current (DC) and single-phase alternating current (AC) motors
- explain the operational characteristics of common DC and AC motors
- set up selected DC and AC motors, and demonstrate their loading characteristics
- demonstrate established laboratory procedures and safe work practices
- create a profile of a trade or occupation within the field of electric motors
- demonstrate basic competencies.

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COURSE ELT3150: ROBOTICS 3

Level: Advanced

Theme: Robotic and Control Systems

Prerequisite: ELT2140 Robotics 2

Description: Students demonstrate remote/autonomous control systems, by constructing circuits to control robotic behaviour.

General Outcomes: *The student will:*

- identify and assemble the required components to build a frequency remote control or microprocessor control for a robotic unit
- identify various microprocessor control systems and subsystems used in robotic units
- explain frequency control or microprocessor control circuits and components in robotic units
- operate a robotic system that has various feedback controls
- demonstrate established laboratory procedures and safe work practices
- create a profile of a trade or occupation within the field of robotics
- demonstrate basic competencies.

COURSE ELT3160: CONTROL APPLICATIONS

Level: Advanced

Theme: Robotic and Control Systems

Prerequisite: ELT2150 Electronic Controls

Description: Students demonstrate the fundamentals of programmed controls, and demonstrate how sensing devices are integrated to control output devices.

General Outcomes: *The student will:*

- identify and describe input and output hardware components and the methods of programming
- use programming logic, including real or programmed inputs, to control electromagnetic devices
- use various instruction codes to operate and control electromagnetic devices
- demonstrate established laboratory procedures and safe work practices
- demonstrate basic competencies.

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ENERGY AND MINES

B. STRAND RATIONALE AND PHILOSOPHY

Alberta's hydrocarbon resources are primary energy sources for Alberta and the rest of Canada and contribute to an important export market. Because our province is so richly endowed with oil, gas, oil sands, heavy oil and coal, the exploration, recovery, production, marketing and management of these resources will likely continue to provide a major contribution to Alberta's economy for the foreseeable future.★

Although Alberta owes much of its present development, lifestyle and demographics to the development of fossil fuels, these resources may, over time, become less readily available and more costly to develop and use. Furthermore, public concern for the environment at local and global levels has expanded to embrace practices that ensure sustainable energy use. The development of renewable energy—the energy generated by water, wind, sun, biomass, waste material and geothermal sources—has the potential to extend the life of Alberta's fossil fuels and supplement conventional energy supplies in specific regions of the province.

The potential of the minerals sector in Alberta has not been fully determined, nor have known deposits been fully developed. In the future, development of metallic, nonmetallic and structural materials could be profoundly important to economic diversification, employment and technological development in Alberta. At present, the recovery and production of minerals for industrial applications have significant effects on Alberta's economy.

Energy and Mines, a strand in Career and Technology Studies, provides a comprehensive view of energy and mineral development in Alberta and Canada. It encompasses resource exploration, recovery, production, marketing and management. Conservation is viewed throughout the strand as a process for managing human use of natural resources to ensure such use is sustainable. Students will develop first-hand knowledge of practices specific to Alberta's energy and mineral industries and will examine technologies that support sustainable development and efficient use of natural resources.

★ *Alberta in the Global Energy Spectrum.* Edmonton, AB: Alberta Energy Information Centre, Government of Alberta, 1995.

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Students in Energy and Mines will develop the knowledge, skills, attitudes, motivation and commitment to work individually and collectively, as private citizens and members of the work force, toward the conservation and responsible use of water, land, air, forests and wildlife. Within the philosophy of Career and Technology Studies, *students* in Energy and Mines *will*:

- develop greater awareness of the economic, environmental and social significance of energy and mineral resources in Alberta and the rest of the world, and develop awareness of factors affecting industry decisions

- describe the characteristics of energy and mineral development in Alberta and Canada, and identify resulting products and services

- describe technologies and research programs designed to enhance the development of a range of products and services and to achieve sustainable use of natural resources

- translate sustainable development and conservation goals into viable plans for developing and marketing energy and mineral products and services

- develop competencies and behaviours that have broad application to environmental career paths, and specific application to careers within Alberta's energy and mineral industries.

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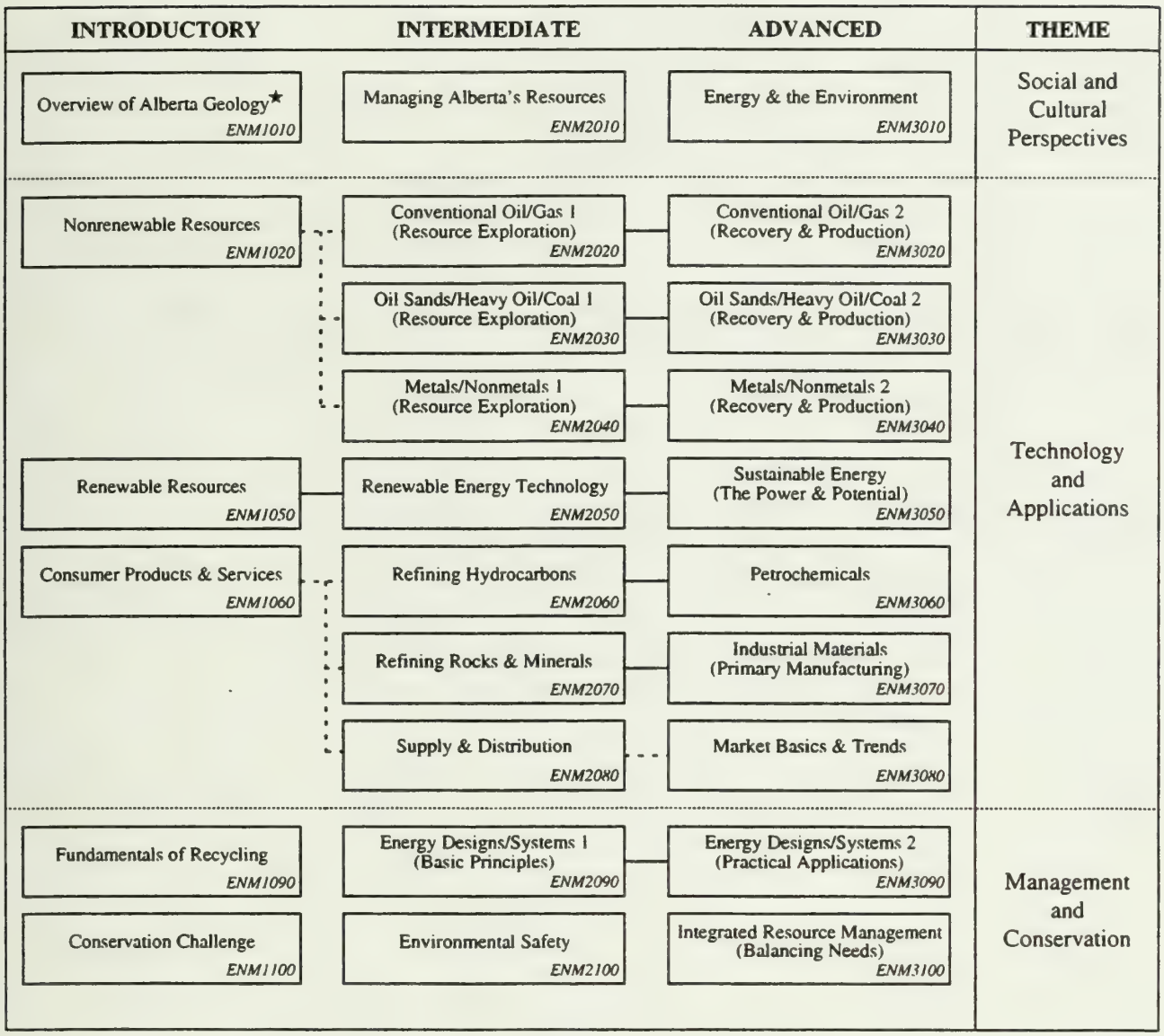
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Overview of Alberta Geology★ ENM1010
Managing Alberta's Resources ENM2010
Energy & the Environment ENM3010
Social and Cultural Perspectives
Nonrenewable Resources ENM1020
Conventional Oil/Gas 1 (Resource Exploration) ENM2020
Conventional Oil/Gas 2 (Recovery & Production) ENM3020
Oil Sands/Heavy Oil/Coal 1 (Resource Exploration) ENM2030
Oil Sands/Heavy Oil/Coal 2 (Recovery & Production) ENM3030
Metals/Nonmetals 1 (Resource Exploration) ENM2040
Metals/Nonmetals 2 (Recovery & Production) ENM3040
Renewable Resources ENM1050
Renewable Energy Technology ENM2050
Sustainable Energy (The Power & Potential) ENM3050
Consumer Products & Services ENM1060
Refining Hydrocarbons ENM2060
Petrochemicals ENM3060
Refining Rocks & Minerals ENM2070
Industrial Materials (Primary Manufacturing) ENM3070
Supply & Distribution ENM2080
Market Basics & Trends ENM3080
Technology and Applications
Fundamentals of Recycling ENM1090
Energy Designs/Systems 1 (Basic Principles) ENM2090
Energy Designs/Systems 2 (Practical Applications) ENM3090
Conservation Challenge ENM1100
Environmental Safety ENM2100
Integrated Resource Management (Balancing Needs) ENM3100
Management and Conservation

—— Prerequisite - - - - Recommended sequence

★ Module provides a strong foundation for further learning in this strand.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE ENM1010: OVERVIEW OF ALBERTA GEOLOGY

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students describe the nature and origin of Alberta's energy and mineral resources, explain their significance in society, and identify related career opportunities.

Module Learner Expectations: *The student will:*

- describe the nature and origin of Alberta's energy and mineral resources within the North American geological context
- explain the social, economic and environmental significance of energy and mineral resources in Alberta
- identify career opportunities relevant to the field of geology
- demonstrate basic competencies.

MODULE ENM1020: NONRENEWABLE RESOURCES

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine general applications of exploration, recovery and production, refining, and reclamation technologies within a nonrenewable energy or mineral industry; and they identify related career opportunities. Potential areas of investigation include conventional crude oil, oil sands, natural gas, coal, nuclear fuels, metallic minerals, nonmetallic minerals and structural materials.

Module Learner Expectations: *The student will:*

- describe the formation and development of a nonrenewable energy or mineral resource in Alberta
- explain basic exploration, recovery and production, refining, and reclamation practices within a nonrenewable energy or mineral industry
- identify career opportunities relevant to a nonrenewable energy or mineral industry
- demonstrate basic competencies.

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MODULE ENM1050: RENEWABLE RESOURCES

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students demonstrate applications of one or more renewable energy technologies, examine the contributions of each to sustainable energy development, and identify related career opportunities. Potential areas of investigation include solar, hydro, wind, tidal, biomass and geothermal energy, as well as energy generated from waste.

Module Learner Expectations: *The student will:*

- describe applications of renewable energy technology
- explain current and potential contributions of renewable energy to sustainable energy development
- identify career opportunities relevant to renewable energy development
- demonstrate basic competencies.

MODULE ENM1060: CONSUMER PRODUCTS & SERVICES

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine the basic techniques involved in developing consumer products and/or services within an energy or mineral industry, and they identify related career opportunities.

Module Learner Expectations: *The student will:*

- describe the range of consumer products and services derived from energy and mineral resources
- explain the processes used to develop a consumer product or to provide a related service
- identify career opportunities relevant to an energy or mineral processing, refining or manufacturing industry
- demonstrate basic competencies.

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MODULE ENM1090: FUNDAMENTALS OF RECYCLING

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students examine opportunities to recycle natural and manufactured materials, and they present the results of research on one or more recycling systems.

Module Learner Expectations: *The student will:*

- present a rationale for waste reduction through recycling, and describe trade-offs that occur through the recycling process
- identify opportunities to recycle organic and inorganic materials, and describe the resulting products that may be developed
- describe one or more recycling systems
- demonstrate basic competencies.

MODULE ENM1100: CONSERVATION CHALLENGE

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students examine relationships between energy and mineral development and the environment, and they propose individual and shared actions that foster environmental stewardship.

Module Learner Expectations: *The student will:*

- describe ways in which energy or mineral development may affect the environment
- identify trends in the consumption of an energy or mineral resource, and explain the objectives of a conservation strategy
- propose personal and shared actions that foster conservation and responsible use of an energy or mineral resource
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE ENM2010: MANAGING ALBERTA'S RESOURCES

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students research agencies and structures used to manage the development of Alberta's energy and mineral resources.

Module Learner Expectations: *The student will:*

- explain how Alberta's energy and mineral resources are managed
- describe government legislation and policies that influence the development of an energy or mineral resource
- explain methods of allocating land and resources for exploration and development
- demonstrate basic competencies.

MODULE ENM2020: CONVENTIONAL OIL/GAS 1 (RESOURCE EXPLORATION)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine specific exploration techniques and technologies within the context of Alberta's conventional oil and/or gas deposits, and they describe related career opportunities.

Module Learner Expectations: *The student will:*

- demonstrate knowledge of current and emerging technologies used in the exploration of conventional oil and gas deposits
- interpret sample seismic log data and well logs in order to predict the nature and extent of a hydrocarbon deposit
- describe career opportunities relevant to the exploration sector of the conventional oil and gas industry
- demonstrate basic competencies.

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MODULE ENM2030: OIL SANDS/HEAVY OIL/COAL 1 (RESOURCE EXPLORATION)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine specific exploration techniques and technologies within the context of Alberta's oil sands, heavy oil or coal deposits, and they describe related career opportunities.

Module Learner Expectations: *The student will:*

- demonstrate knowledge of current and emerging technologies used in the exploration of oil sands, heavy oil or coal deposits
- explain applications of low-depth drilling and log analysis in predicting the nature and extent of an oil sands, heavy oil or coal deposit
- describe career opportunities relevant to the exploration sector of the oil sands, heavy oil or coal industry
- demonstrate basic competencies.

MODULE ENM2040: METALS/NONMETALS 1 (RESOURCE EXPLORATION)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine specific exploration techniques and technologies within the context of a metallic and/or nonmetallic mineral deposit, and they describe related career opportunities.

Module Learner Expectations: *The student will:*

- demonstrate knowledge of current and emerging technologies used in the exploration of economic mineral deposits
- interpret geological logs in order to predict the nature and extent of a metallic or nonmetallic mineral deposit
- describe career opportunities relevant to the exploration sector of the mineral industry
- demonstrate basic competencies.

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MODULE ENM2050: RENEWABLE ENERGY TECHNOLOGY

Level: Intermediate

Theme: Technology and Applications

Prerequisite: ENM1050 Renewable Resources

Module Description: Students define and explain the need for sustainable energy development, research one or more renewable energy technologies; e.g., hydro, wind, solar, tidal, biomass, geothermal, nuclear, hydrogen, ethanol, blended fuel, fuel cell, and construct a model of a renewable energy system.

Module Learner Expectations: *The student will:*

- explain the role of renewable energy sources in sustainable energy development
- demonstrate applications of one or more renewable energy technologies
- describe career opportunities relevant to renewable energy development
- demonstrate basic competencies.

MODULE ENM2060: REFINING HYDROCARBONS

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine the principles and technologies involved in processing natural gas, refining crude oil, upgrading heavy oils and bitumen, or processing coal. Students also describe related career opportunities.

Module Learner Expectations: *The student will:*

- describe commodity inputs and consumer products characteristic of the hydrocarbon processing industry
- explain techniques used to process natural gas, refine crude oil, upgrade heavy oils and bitumen, or process coal
- describe career opportunities relevant to the processing or refining sector of a hydrocarbon industry
- demonstrate basic competencies.

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MODULE ENM2070: REFINING ROCKS & MINERALS

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students examine the principles and processes involved in refining an industrial (nonmetallic) mineral or a metallic mineral, and they describe related career opportunities.

Module Learner Expectations: *The student will:*

- describe commodity inputs and consumer products characteristic of the mineral processing industry
- explain techniques used to refine an industrial (nonmetallic) mineral or a metallic mineral
- describe career opportunities relevant to the processing sector of a rock or mineral industry
- demonstrate basic competencies.

MODULE ENM2080: SUPPLY & DISTRIBUTION

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students research marketing and distribution networks within an energy or mineral industry; examine regulatory structures and policies that influence supply of a commodity, product or service; and describe related career opportunities.

Module Learner Expectations: *The student will:*

- explain marketing and distribution systems used within an energy or mineral industry
- describe regulatory structures and policies that influence supply of a commodity, product or service
- describe career opportunities relevant to the marketing and distribution of an energy or mineral resource
- demonstrate basic competencies.

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MODULE ENM2090: ENERGY DESIGNS/SYSTEMS 1 (BASIC PRINCIPLES)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students investigate the basic principles of energy conservation and efficiency and relate them to energy designs and systems used in the residential, commercial or transportation sector.

Module Learner Expectations: *The student will:*

- explain basic principles of energy conservation and efficiency
- demonstrate applications of energy technology in the residential, commercial or transportation sector
- describe career opportunities relevant to low energy design and technology
- demonstrate basic competencies.

MODULE ENM2100: ENVIRONMENTAL SAFETY

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students identify environmental hazards that result from activities within an energy or mineral industry, and describe specific environmental monitoring and management practices adopted by the industry.

Module Learner Expectations: *The student will:*

- identify environmental hazards and issues relevant to one of Alberta's energy or mineral industries
- describe environmental policies and legislation that influence operations within an energy or mineral industry
- explain environmental monitoring and management practices conducted by an energy or mineral industry
- describe career opportunities relevant to environmental assessment and management
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE ENM3010: ENERGY & THE ENVIRONMENT

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students assess the social, economic and environmental benefits and costs of resource development, and demonstrate personal and shared actions that foster energy conservation and environmental stewardship.

Module Learner Expectations: *The student will:*

- describe the social, economic and environmental significance of energy development
- plan and implement a strategy for personal action that fosters an environmentally sensitive lifestyle
- plan and implement a group; e.g., class, school, community, action campaign that fosters environmental awareness, energy conservation and energy efficiency
- explain career opportunities relevant to environmental management
- demonstrate basic competencies.

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MODULE ENM3020: CONVENTIONAL OIL/GAS 2 (RECOVERY & PRODUCTION)

Level: Advanced

Theme: Technology and Applications

Prerequisite: ENM2020 Conventional Oil/Gas 1 (Resource Exploration)

Module Description: Students examine specific recovery and production techniques within the context of a conventional oil and/or gas industry, and they explain related career opportunities.

Module Learner Expectations: *The student will:*

- describe techniques used to complete and service a conventional oil or gas well
- explain applications of enhanced oil recovery technology in maximizing recovery rates for conventional oil or gas
- describe field gathering facilities and distribution systems used in the conventional oil or gas industry
- explain career opportunities relevant to the recovery and production sector of the conventional oil and gas industry
- demonstrate basic competencies.

MODULE ENM3030: OIL SANDS/HEAVY OIL/COAL 2 (RECOVERY & PRODUCTION)

Level: Advanced

Theme: Technology and Applications

Prerequisite: ENM2030 Oil Sands/Heavy Oil/Coal 1 (Resource Exploration)

Module Description: Students examine specific recovery and production techniques within the context of Alberta's oil sands, heavy oil or coal deposits; and they explain related career opportunities.

Module Learner Expectations: *The student will:*

- describe techniques used to recover a nonconventional hydrocarbon resource
- describe field gathering facilities and distribution systems used in the oil sands, heavy oil or coal industry
- explain current and emerging applications of technology in maximizing recovery of heavy oil, bitumen or coal in Alberta
- explain career opportunities relevant to the recovery and production sector of a nonconventional hydrocarbon industry
- demonstrate basic competencies.

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MODULE ENM3040: METALS/NONMETALS 2 (RECOVERY & PRODUCTION)

Level: Advanced

Theme: Technology and Applications

Prerequisite: ENM2040 Metals/Nonmetals 1 (Resource Exploration)

Module Description: Students examine specific recovery and production techniques within the context of a metallic and/or nonmetallic mineral deposit, and they explain related career opportunities.

Module Learner Expectations: *The student will:*

- describe techniques used to recover metallic and nonmetallic commodities from mineral deposits
- describe field gathering facilities and distribution systems used in the mineral industry
- explain current and emerging applications of technology in enhancing recovery methods for mineral deposits
- explain career opportunities relevant to the recovery and production sector of a mineral industry
- demonstrate basic competencies.

MODULE ENM3050: SUSTAINABLE ENERGY (THE POWER & POTENTIAL)

Level: Advanced

Theme: Technology and Applications

Prerequisite: ENM2050 Renewable Energy Technology

Module Description: Students examine opportunities for planning renewable energy development and conserving conventional energy for its ideal use.

Module Learner Expectations: *The student will:*

- identify alternatives and consequences associated with current issues involving energy supply and demand
- describe the benefits and obstacles associated with demand-side energy management
- present a plan for sustainable energy development
- explain career opportunities relevant to energy planning and development
- demonstrate basic competencies.

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MODULE ENM3060: PETROCHEMICALS

Level: Advanced

Theme: Technology and Applications

Prerequisite: ENM2060 Refining Hydrocarbons

Module Description: Students investigate the conversion of hydrocarbons into consumer products within a petrochemical industry, and they explain related career opportunities.

Module Learner Expectations: *The student will:*

- identify consumer and industrial products made available through petrochemical processes
- explain how petroleum molecules are sorted, broken apart and reassembled at petrochemical plants
- describe technologies used to manufacture a petrochemical product
- explain career opportunities relevant to a petrochemical industry
- demonstrate basic competencies.

MODULE ENM3070: INDUSTRIAL MATERIALS (PRIMARY MANUFACTURING)

Level: Advanced

Theme: Technology and Applications

Prerequisite: ENM2070 Refining Rocks & Minerals

Module Description: Students investigate technologies used to convert petroleum and mineral resources into industrial (stock) materials used in secondary manufacturing processes, and they explain related career opportunities.

Module Learner Expectations: *The student will:*

- describe industrial (stock) materials produced through primary manufacturing processes
- describe relationships between the molecular structure, properties and applications of an industrial (stock) material
- explain technologies used to manufacture a metallic, polymeric, ceramic or composite material
- explain career opportunities relevant to a primary manufacturing industry
- demonstrate basic competencies.

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MODULE ENM3080: MARKET BASICS & TRENDS

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Module Description: Students explain the basic principles involved in marketing an energy or mineral resource, and analyze trends in the development and marketing of energy or mineral products.

Module Learner Expectations: *The student will:*

- identify basic marketing principles and their application in an energy or mineral industry
- describe market demands for an energy or mineral product, and describe the impact of government policies on marketing practices
- identify market trends and development opportunities in domestic and international markets
- explain career opportunities relevant to the development and marketing of energy or mineral products
- demonstrate basic competencies.

MODULE ENM3090: ENERGY DESIGNS/SYSTEMS 2 (PRACTICAL APPLICATIONS)

Level: Advanced

Theme: Management and Conservation

Prerequisite: ENM2090 Energy Designs/Systems 1 (Basic Principles)

Module Description: Students analyze energy-saving technologies and systems and design a residential/commercial structure or transportation technology that demonstrates the principles of energy conservation and efficiency.

Module Learner Expectations: *The student will:*

- describe energy use within a residential/commercial environment or transportation sector
- design a residential/commercial structure or transportation technology that uses energy conservation and efficiency
- explain career opportunities relevant to energy design and technology
- demonstrate basic competencies.

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MODULE ENM3100: INTEGRATED RESOURCE MANAGEMENT (BALANCING NEEDS)

Level: Advanced

Theme: Management and Conservation

Prerequisite: None

Module Description: Students develop and present an integrated plan for sustainable resource development that incorporates supply side and demand side resource management.

Module Learner Expectations: *The student will:*

- describe basic principles of resource management
- present a plan for the sustainable development and integrated use of an energy or mineral resource
- explain career opportunities relevant to resource management
- demonstrate basic competencies.

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ENTERPRISE AND INNOVATION

B. STRAND RATIONALE AND PHILOSOPHY

Enterprising individuals are agents of change. They make things happen. They recognize opportunities for improvement in goods, services and processes and undertake to mobilize resources to meet challenges and to innovate. Enterprising individuals develop new ways of responding to the many changes and challenges we face in an increasingly competitive and interrelated world.

Schools can play a key role in helping students become more enterprising and innovative. Enterprise and Innovation, a strand in Career and Technology Studies, is designed to challenge high school students of all ability levels to expand their confidence, experience and skills as innovators and leaders, encouraging them to recognize how these competencies can help them succeed in any career, whether as a volunteer, an employer or an employee.

One career area, entrepreneurship, depends particularly on the individual's ability to be enterprising and innovative. **Entrepreneurship** involves the recognition of opportunities—needs, wants and problems—and the use of resources to implement innovative ideas for new, thoughtfully planned ventures. **Intrapreneurship** is entrepreneurship occurring within an existing organization.

Throughout Enterprise and Innovation, entrepreneurship will be used frequently as the context for learning, helping students develop expertise in:

- identifying opportunities
- monitoring and revising plans as necessary
- marshalling resources
- developing sensitivity to the needs and wants of client groups
- developing and implementing plans
- building teamwork and leadership skills.

Within a secure and supportive environment, students will have opportunities to develop and implement venture plans, either in simulation or in real terms. These venture plans could be community-, public service- or profit-related. Through these ventures, students will develop numeracy, communication, decision-making and social skills. Students will be encouraged to link the competencies they have developed through past experiences, hobbies and interests with those developed in core and complementary courses.

Ventures can take many forms. For example, students might:

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- establish a business venture
- establish a volunteer, community or service program
- plan, market and manage an event or a conference
- produce, market and distribute a book or video.

These venture plans link technical, managerial, enterprise and innovation competencies. At the same time, opportunities to understand career options better can help students invest their energies more effectively in those occupational areas they prefer and in which they have the aptitude to succeed. The program helps students understand basic economic principles and business processes. In addition, students develop an increased awareness and appreciation of the roles of small business, entrepreneurship and self-employment in society.

High school students make crucial career decisions as they move toward independence and adult responsibilities. In view of the frequent career changes that students can expect to experience throughout their work life, they need to develop competencies that can be transferred readily. They need to be able to recognize an opportunity and to develop confidence in their ability to act on that opportunity. This process involves identifying and assessing their strengths, aptitudes and interests as they prepare to leave high school and continue in post-secondary programs or move directly into the workplace.

Within the philosophy of Career and Technology Studies, *students* in Enterprise and Innovation *will*:

- identify and enhance personal motivation; self-concept; and the knowledge, skills and attitudes that foster enterprise and innovation in all kinds of endeavours, such as business ventures, community ventures and nonprofit ventures. Skills included are:
  - creative thinking
  - goal setting
  - communicating
  - researching/organizing
  - decision making/problem solving
  - team building
  - managing
  - planning
- develop greater awareness of the roles of business, entrepreneurship and intrapreneurship in our society and the global economy
- translate change and challenge into a viable opportunity by identifying options, resources and sources of support.

Learner expectations defined in Enterprise and Innovation comprise the competencies to help students become:

- more comfortable with change and innovation
- more entrepreneurial or intrapreneurial in any career, whether as a volunteer, an employer or an employee
- more accepting of both success and failure as learning opportunities
- more sophisticated consumers of business services
- more aware of public and private sector development initiatives and investments.

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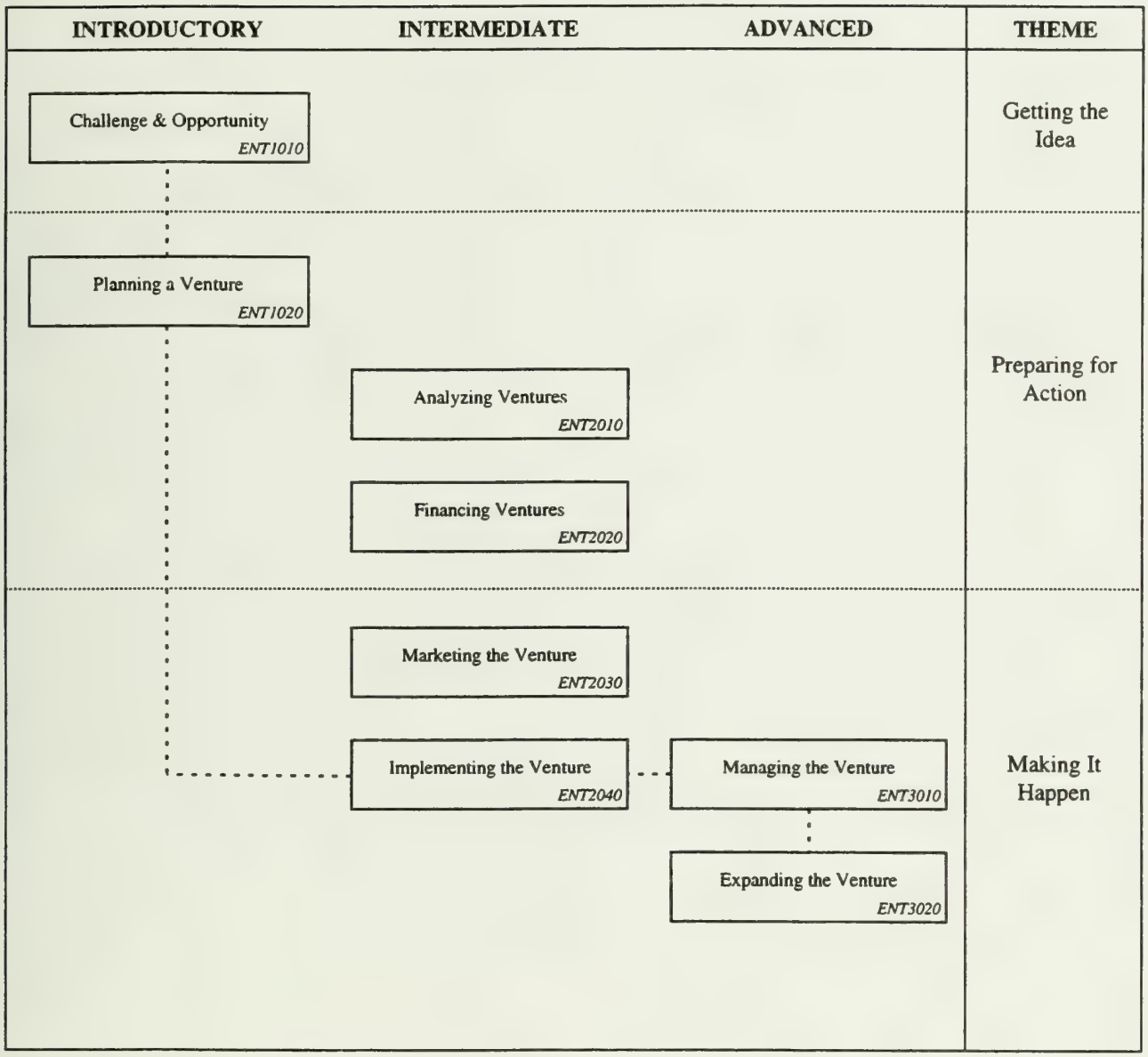
SCOPE AND SEQUENCE



- - - - Recommended sequence

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE ENT1010: CHALLENGE & OPPORTUNITY

Level: Introductory

Theme: Getting the Idea

Prerequisite: None

Module Description: Students identify, compare and assess a variety of venture opportunities and ideas, and investigate career paths and possibilities where enterprise and innovation are particularly important.

Module Learner Expectations: *The student will:*

- demonstrate competencies in:
  - identifying opportunities
  - creating and generating ideas
  - establishing needs, wants and priorities
  - assessing alternatives
  - assessing environmental impact
- describe career options where enterprise and innovation are particularly important
- identify and compare a variety of venture opportunities
- identify various forms of business ownership
- identify the components of a venture plan
- demonstrate basic competencies.

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MODULE ENT1020: PLANNING A VENTURE

Level: Introductory

Theme: Preparing for Action

Prerequisite: None

Module Description: Students learn and apply the "venture planning process," while planning a venture.

Module Learner Expectations: *The student will:*

- demonstrate personal goal-setting and problem-solving strategies that facilitate change
- describe potential risks, and propose strategies for assessing risks related to a venture
- describe strategies for securing resources and support required to implement a venture
- select, plan and assess a venture
- demonstrate qualities that initiate change:
  - initiative
  - flexibility
  - leadership/teamwork
  - skills
- describe career options where enterprise and innovation are particularly important
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE ENT2010: ANALYZING VENTURES

Level: Intermediate

Theme: Preparing for Action

Prerequisite: None

Module Description: Students gather and analyze data to make informed decisions about the feasibility of ventures.

Module Learner Expectations: *The student will:*

- describe and apply various methodologies for analyzing and evaluating ventures:
  - market analysis
  - industry analysis
  - financial analysis
  - product/service evaluation
- analyze research, compare a variety of ventures, and make informed decisions about the feasibility of each venture
- demonstrate basic competencies.

MODULE ENT2020: FINANCING VENTURES

Level: Intermediate

Theme: Preparing for Action

Prerequisite: None

Module Description: Students compare various sources of financing, and choose the method that is best for financing the venture.

Module Learner Expectations: *The student will:*

- identify the advantages and disadvantages of financial options
- describe various sources of financing for ventures
- demonstrate the differences between short- and long-term financing
- demonstrate the process of applying for different types of financing
- demonstrate basic competencies.

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MODULE ENT2030: MARKETING THE VENTURE

Level: Intermediate

Theme: Making It Happen

Prerequisite: None

Module Description: Students appraise various marketing strategies, and formulate a marketing strategy for a venture.

Module Learner Expectations: *The student will:*

- describe various marketing strategies in terms of their suitability in reaching the target market for the venture
- describe and implement a marketing strategy for a particular venture
- identify the strengths and weaknesses of the marketing strategy, and revise the strategy as necessary
- demonstrate basic competencies.

MODULE ENT2040: IMPLEMENTING THE VENTURE

Level: Intermediate

Theme: Making It Happen

Prerequisite: None

Module Description: Students implement and assess a venture.

Module Learner Expectations: *The student will:*

- implement a venture
- describe management procedures required to start the venture
- demonstrate leadership qualities in implementing the venture
- demonstrate problem solving and decision making at each implementation stage of the venture
- assess the venture
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE ENT3010: MANAGING THE VENTURE

Level: Advanced

Theme: Making It Happen

Prerequisite: None

Module Description: Students develop management procedures for a venture.

Module Learner Expectations: *The student will:*

- describe management procedures necessary to implement the venture
- manage the venture by performing the following functions:
  - making decisions
  - managing human resources
  - managing finances
- describe critical risks, and develop contingency procedures
- describe the monitoring procedure and revisions to the venture plan
- demonstrate basic competencies.

MODULE ENT3020: EXPANDING THE VENTURE

Level: Advanced

Theme: Making It Happen

Prerequisite: None

Module Description: Students explore and assess the elements of success in expanding a venture.

Module Learner Expectations: *The student will:*

- describe the rationale for expanding a particular venture
- identify the options available, and describe an expansion strategy
- describe a plan to expand a particular venture
- describe the elements of "success" (as personally defined) of the expanded venture
- demonstrate basic competencies.

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FABRICATION STUDIES

B. STRAND RATIONALE AND PHILOSOPHY

Metal products and structures have shaped world history. For thousands of years, metals have been shaped, joined and cast into items that have utilitarian and artistic value. Today, the search continues to develop new metals, processes and products for the 21st century.

The fabricated materials sector of the Canadian economy is characterized by a large number of small entrepreneurial businesses that supply the construction and manufacturing industries' intermediate or finished product requirements. This sector is a medium technology industry that depends principally on metals and related materials.

To compete in North American and global markets, the fabricated materials sector is investing in leading-edge technology and is hiring highly trained and talented people to manage and operate this technology effectively and efficiently.

The Fabrication Studies strand has been developed within Career and Technology Studies to help meet this training need. Students selecting courses from the Fabrication Studies strand have the opportunity to investigate and develop important knowledge, skills and attitudes related to the properties of materials and the design and fabrication of products.

In this strand, students are provided with a broad base of relevant theory and practice that builds daily living and career-specific skills. Successful completion of advanced level courses gives students the skills and experience required for entry-level employment or for post-secondary education.

Within the philosophy of Career and Technology Studies, *students* in Fabrication Studies *will*:

- develop safe work and environmental practices
- develop self- and resource-management skills
- link the knowledge, skills and attitudes developed in other courses in meaningful and practical ways to the study of fabrication processes
- demonstrate flexibility, cooperative work behaviours, and effective communication and leadership skills
- link theory and practice, using available resources, tools and materials responsibly and efficiently
- expand personal knowledge and appreciation of career options and training opportunities.

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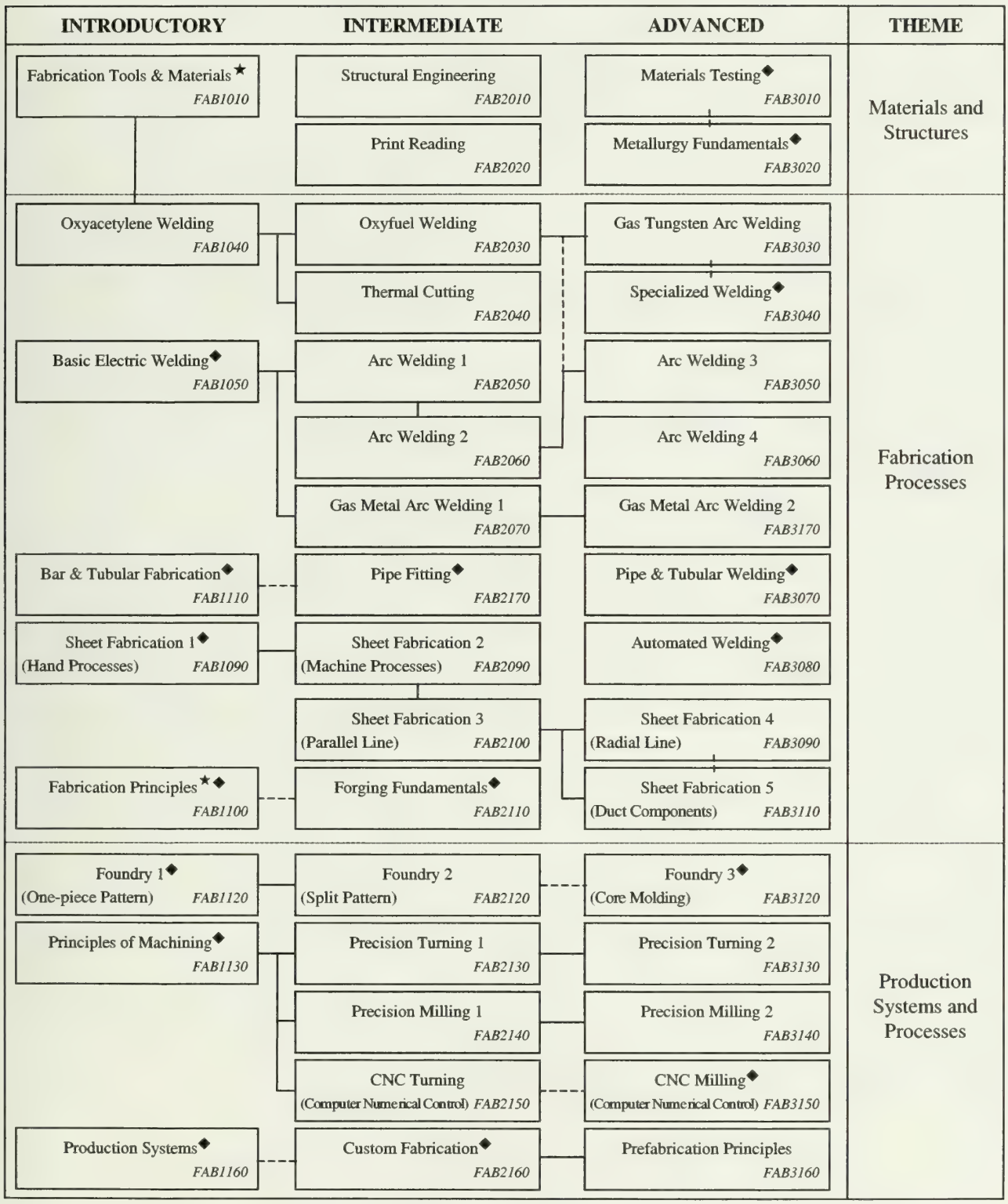
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Fabrication Tools & Materials ★ FAB1010
Structural Engineering FAB2010
Print Reading FAB2020
Materials Testing ◆ FAB3010
Metallurgy Fundamentals ◆ FAB3020
Materials and Structures
Oxyacetylene Welding FAB1040
Oxyfuel Welding FAB2030
Thermal Cutting FAB2040
Gas Tungsten Arc Welding FAB3030
Specialized Welding ◆ FAB3040
Basic Electric Welding ◆ FAB1050
Arc Welding 1 FAB2050
Arc Welding 2 FAB2060
Arc Welding 3 FAB3050
Arc Welding 4 FAB3060
Gas Metal Arc Welding 1 FAB2070
Gas Metal Arc Welding 2 FAB3170
Bar & Tubular Fabrication ◆ FAB1110
Pipe Fitting ◆ FAB2170
Pipe & Tubular Welding ◆ FAB3070
Sheet Fabrication 1 ◆ (Hand Processes) FAB1090
Sheet Fabrication 2 (Machine Processes) FAB2090
Automated Welding ◆ FAB3080
Sheet Fabrication 3 (Parallel Line) FAB2100
Sheet Fabrication 4 (Radial Line) FAB3090
Fabrication Principles ★◆ FAB1100
Forging Fundamentals ◆ FAB2110
Sheet Fabrication 5 (Duct Components) FAB3110
Fabrication Processes
Foundry 1 ◆ (One-piece Pattern) FAB1120
Foundry 2 (Split Pattern) FAB2120
Foundry 3 ◆ (Core Molding) FAB3120
Principles of Machining ◆ FAB1130
Precision Turning 1 FAB2130
Precision Turning 2 FAB3130
Precision Milling 1 FAB2140
Precision Milling 2 FAB3140
CNC Turning (Computer Numerical Control) FAB2150
CNC Milling ◆ (Computer Numerical Control) FAB3150
Production Systems ◆ FAB1160
Custom Fabrication ◆ FAB2160
Prefabrication Principles FAB3160
Production Systems and Processes

——— Prerequisite - - - - - Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

◆ Refer to specific course for additional prerequisites.

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE FAB1010: FABRICATION TOOLS & MATERIALS

Level: Introductory

Theme: Materials and Structures

Prerequisite: None

Description: Students develop knowledge and skills in the use of basic hand tools and materials used in fabrication processes, and safely transform common metals into useful products.

General Outcomes: *The student will:*

- identify and describe the safe use of basic hand tools used in fabricating an artifact or structure
- identify and compare the properties of common ferrous and nonferrous metals used in fabrication processes
- apply fabrication processes and skills in a safe manner to produce a useful product
- demonstrate basic competencies.

COURSE FAB1040: OXYACETYLENE WELDING

Level: Introductory

Theme: Fabrication Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students develop basic skills in the safe handling and operation of oxyacetylene equipment.

General Outcomes: *The student will:*

- recognize health and safety hazards associated with oxyacetylene welding (OAW), and take preventive measures to avoid accidents and personal injury to self and others
- perform safe oxyacetylene start-up and shut-down procedures
- demonstrate basic oxyacetylene welding competencies
- demonstrate basic competencies.

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COURSE FAB1050: BASIC ELECTRIC WELDING

Level: Introductory

Theme: Fabrication Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students develop basic skills related to safe use and operation of one or more common electric welding processes.

General Outcomes: *The student will:*

- recognize health and safety hazards associated with electric welding processes, and preventive measures to avoid accidents and personal injury to self and others
- perform safe gas metal and/or shielded metal arc welding start-up and shut-down procedures
- demonstrate basic arc welding competencies
- demonstrate basic competencies.

COURSE FAB1090: SHEET FABRICATION 1 (HAND PROCESSES)

Level: Introductory

Theme: Fabrication Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students use basic tools, materials and processes to fabricate sheet materials into finished products, models or prototypes.

General Outcomes: *The student will:*

- identify and describe basic tools and processes used to fabricate sheet stock
- demonstrate basic measurement and layout skills and techniques
- apply basic sheet stock fabrication skills and techniques to produce a product
- demonstrate basic competencies.

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COURSE FAB1100: FABRICATION PRINCIPLES

Level: Introductory

Theme: Fabrication Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students investigate and apply fundamental principles of fabrication to build an artifact or structure from common structural materials.

General Outcomes: *The student will:*

- identify and describe the principles of separating, forming and combining materials
- describe the characteristics and give examples of permanent, semipermanent and temporary fastening systems
- demonstrate basic fabrication skills and techniques, using simple hand and power tools
- demonstrate basic competencies.

COURSE FAB1110: BAR & TUBULAR FABRICATION

Level: Introductory

Theme: Fabrication Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students use cutting, bending and fastening processes to create a variety of products from bar and tubular stock.

General Outcomes: *The student will:*

- list and describe common shapes and sizes of bar and tubular stock
- demonstrate approved material handling and storage practices
- apply basic bar and tubular fabrication skills and techniques to produce a product
- demonstrate basic competencies.

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COURSE FAB1120: FOUNDRY 1 (ONE-PIECE PATTERN)

Level: Introductory

Theme: Production Systems and Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students develop the basic skills required to produce a simple one-piece pattern, a sand mold and a finished casting.

General Outcomes: *The student will:*

- recognize health and safety hazards associated with casting metal, and take preventive measures to avoid accidents and personal injury to self and others
- demonstrate basic pattern making skills to make a one-piece mold
- demonstrate basic sand casting skills, using a one-piece pattern
- demonstrate basic competencies.

COURSE FAB1130: PRINCIPLES OF MACHINING

Level: Introductory

Theme: Production Systems and Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students develop basic hand and machine tool knowledge, skills and techniques to mechanically remove materials.

General Outcomes: *The student will:*

- identify and describe common machineable materials and machining processes
- perform safe set up, operation and shut down of equipment used in drilling, grinding and turning operations
- demonstrate basic hand and machine tool knowledge, skills and techniques
- demonstrate basic competencies.

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COURSE FAB1160: PRODUCTION SYSTEMS

Level: Introductory

Theme: Production Systems and Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students investigate and compare the principles of production operation and the characteristics of a number of production systems.

General Outcomes: *The student will:*

- list and describe common methods of manufacturing durable products
- demonstrate basic production planning and management skills
- identify the present and future career opportunities related to the production of durable products
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE FAB2010: STRUCTURAL ENGINEERING

Level: Intermediate

Theme: Materials and Structures

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students investigate the nature of forces and structural materials, and apply their findings to design and fabrication activities.

General Outcomes: *The student will:*

- list and describe the principal characteristics of all structures
- identify strategies to improve the efficiency of a structure
- apply principles of structural design to fabrication and construction activities
- demonstrate basic competencies.

COURSE FAB2020: PRINT READING

Level: Intermediate

Theme: Materials and Structures

Prerequisite: None

Description: Students develop basic skills in reading and interpreting working drawings to prepare a bill of materials and sequence of operations.

General Outcomes: *The student will:*

- identify and describe the principal components of a print
- demonstrate basic print reading skills
- demonstrate basic competencies.

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COURSE FAB2030: OXYFUEL WELDING

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1040 Oxyacetylene Welding

Description: Students develop basic skills in the safe and efficient use of oxyfuel equipment and supplies to braze and fusion weld.

General Outcomes: *The student will:*

- describe the essential differences between braze welding and fusion welding
- demonstrate basic braze welding competencies
- demonstrate basic oxyfuel weld (OFW) competencies in the flat, horizontal and vertical positions
- demonstrate basic competencies.

COURSE FAB2040: THERMAL CUTTING

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1040 Oxyacetylene Welding

Description: Students develop basic skills to use, safely and efficiently, thermal cutting equipment and supplies.

General Outcomes: *The student will:*

- identify health and safety hazards associated with thermal cutting, and take preventive measures to avoid accidents and personal injury to self and others
- perform safe start-up and shut-down cutting procedures
- demonstrate basic manual cutting operations
- demonstrate basic competencies.

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COURSE FAB2050: ARC WELDING 1

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1050 Basic Electric Welding

Description: Students develop basic knowledge, skills and attitudes related to the operation and use of shielded metal arc welding (SMAW) equipment and accessories to make a variety of welds in the flat position.

General Outcomes: *The student will:*

- identify the appropriate treatment for minor injuries associated with welding processes
- describe the visual characteristics of a desirable weld
- demonstrate basic SMAW competencies in the flat position
- demonstrate basic competencies.

COURSE FAB2060: ARC WELDING 2

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB2050 Arc Welding 1

Description: Students identify appropriate electrodes, visually assessing a weld, and making the necessary adjustments to improve weld quality while developing horizontal position welding skills.

General Outcomes: *The student will:*

- explain the current systems used to classify electrodes in Canada and the United States
- identify strategies to assess and improve weld quality
- demonstrate basic shielded metal arc welding (SMAW) competencies in the horizontal position
- demonstrate basic competencies.

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COURSE FAB2070: GAS METAL ARC WELDING 1

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1050 Basic Electric Welding

Description: Students build a knowledge and skill base related to gas metal arc welding (GMAW) that has both personal use and commercial applications.

General Outcomes: *The student will:*

- outline the advantages and disadvantages of gas metal arc welding versus other forms of arc welding processes
- identify health and safety hazards associated with gas metal arc welding, and take preventive measures to avoid accidents and personal injury to self and others
- demonstrate gas metal arc welding competencies on light gauge mild steel in the flat and horizontal positions
- demonstrate basic competencies.

COURSE FAB2090: SHEET FABRICATION 2 (MACHINE PROCESSES)

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1090 Sheet Fabrication 1 (Hand Processes)

Description: Students use basic layout, cutting, bending and fastening operations to transform common types of sheet metals into consumer products.

General Outcomes: *The student will:*

- identify and describe common types of stock sheet metal materials and related tools
- demonstrate approved materials handling and storage practices
- perform basic sheet metal fabrication skills and practices to produce a product
- demonstrate basic competencies.

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COURSE FAB2100: SHEET FABRICATION 3 (PARALLEL LINE)

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB2090 Sheet Fabrication 2 (Machine Processes)

Description: Students expand sheet metal skills related to pattern making, seam constructing and edge treating.

General Outcomes: *The student will:*

- describe and give examples of parallel line developments
- create a parallel line development, using standard drawing and layout practices
- apply sheet metal fabrication principles skills to fabricate a product, using parallel line development
- demonstrate basic competencies.

COURSE FAB2110: FORGING FUNDAMENTALS

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1110 Bar & Tubular Fabrication

Description: Students determine the effects of heating and striking metal to change its shape and internal structure, using forging techniques.

General Outcomes: *The student will:*

- identify health and safety hazards associated with metal forging, and take preventive measures to avoid accidents and personal injury to self and others
- identify and describe the basic tools and processes used in forging
- demonstrate basic metal forging skills and practices
- demonstrate basic competencies.

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COURSE FAB2120: FOUNDRY 2 (SPLIT PATTERN)

Level: Intermediate

Theme: Production Systems and Processes

Prerequisite: FAB1120 Foundry 1 (One-piece Pattern)

Description: Students expand their pattern making and foundry skills to produce split pattern molds and finished castings.

General Outcomes: *The student will:*

- describe the essential similarities and differences between a one-piece pattern and a split pattern
- describe and perform safe start-up and shut-down procedures for the operation of a foundry furnace
- demonstrate basic pattern making skills to make a split pattern
- apply sand casting principles and skills to make a casting from a split pattern
- demonstrate basic competencies.

COURSE FAB2130: PRECISION TURNING 1

Level: Intermediate

Theme: Production Systems and Processes

Prerequisite: FAB1130 Principles of Machining

Description: Students develop basic turning skills to size, shape and finish common machineable metals and plastics.

General Outcomes: *The student will:*

- identify health and safety hazards specific to metal turning, and take preventive measures to avoid accidents and personal injury to self and others
- perform safe metal lathe set-up, operation and shut-down procedures
- demonstrate basic straight turning and finishing skills
- demonstrate basic competencies.

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COURSE FAB2140: PRECISION MILLING 1

Level: Intermediate

Theme: Production Systems and Processes

Prerequisite: FAB1130 Principles of Machining

Description: Students develop basic milling skills to shape and finish common machineable metals and plastics.

General Outcomes: *The student will:*

- identify health and safety hazards specific to milling operations, and take preventive measures to avoid accidents and personal injury to self and others
- perform safe milling machine set-up, operation and shut-down procedures
- demonstrate basic milling machine skills and practices
- demonstrate basic competencies.

COURSE FAB2150: CNC TURNING (COMPUTER NUMERICAL CONTROL)

Level: Intermediate

Theme: Production Systems and Processes

Prerequisite: FAB1130 Principles of Machining

Description: Students develop skills in computer assisted design (CAD) and computer numerical control (CNC) programming to manufacture a product on a CNC lathe.

General Outcomes: *The student will:*

- identify safety hazards associated with CNC equipment and, take preventive measures to avoid accidents and personal injury to self and others
- demonstrate two-dimensional programming and/or CAD skills
- apply CNC programming skills to manufacture a turned part
- demonstrate basic competencies.

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COURSE FAB2160: CUSTOM FABRICATION

Level: Intermediate

Theme: Production Systems and Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students work independently, or in a cooperative learning environment, to plan and construct a product/structure that meets a specific client's needs.

General Outcomes: *The student will:*

- demonstrate appropriate communicating and planning skills
- demonstrate effective resource management skills and practices
- demonstrate custom fabrication competencies
- demonstrate basic competencies.

COURSE FAB2170: PIPE FITTING

Level: Intermediate

Theme: Fabrication Processes

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students learn about the uses of pipes, basic piping principles and fabrication skills.

General Outcomes: *The student will:*

- identify and describe common pipe fitting materials and applications
- research and profile a trade or occupation within the pipe fitting field
- demonstrate approved methods of joining common types of pipes and materials
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE FAB3010: MATERIALS TESTING

Level: Advanced

Theme: Materials and Structures

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students are introduced to the principles of materials testing, and to the development and evaluation of a mechanical materials test.

General Outcomes: *The student will:*

- describe the purpose and nature of materials testing
- apply testing principles to construct or use a piece of materials testing apparatus
- test and compare the properties of common materials used in construction and fabrication
- demonstrate basic competencies.

COURSE FAB3020: METALLURGY FUNDAMENTALS

Level: Advanced

Theme: Materials and Structures

Prerequisite: FAB1010 Fabrication Tools & Materials

Description: Students develop fundamental understandings and skills related to metallurgy, and apply these skills to fabrication processes.

General Outcomes: *The student will:*

- identify and describe the fundamental principles of metallurgy and their industrial applications
- identify the basic alloy components and properties of common alloys
- apply metallurgical principles, skills and processes to heat treat a component or product
- demonstrate basic competencies.

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COURSE FAB3030: GAS TUNGSTEN ARC WELDING

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB2030 Oxyfuel Welding

Description: Students develop basic knowledge and skills related to the use of gas tungsten arc welding (GTAW) equipment and supplies to weld mild steel in the flat and horizontal positions.

General Outcomes: *The student will:*

- identify health and safety hazards associated with GTAW, and take preventive measures to avoid accidents and personal injury to self and others
- outline the advantages of GTAW over other forms of welding
- demonstrate basic GTAW competencies in the flat and horizontal positions
- demonstrate basic competencies.

COURSE FAB3040: SPECIALIZED WELDING

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB2030 Oxyfuel Welding

Description: Students develop specific skills associated with advanced welding techniques to join and repair metals other than low carbon steel.

General Outcomes: *The student will:*

- list health and safety specific hazards associated with welding metals other than low carbon steels, and take preventive measures to avoid accidents and personal injury to self and others
- describe the unique welding characteristics of weldable metals other than low carbon steel
- select appropriate filler material and welding process to weld a metal other than low carbon steel
- demonstrate basic competencies.

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COURSE FAB3050: ARC WELDING 3

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB2060 Arc Welding 2

Description: Students learn the role of codes and standards in the welding trade, as well as test welds and develop vertical position welding skills.

General Outcomes: *The student will:*

- examine and maintain sheet metal arc welding (SMAW) equipment and accessories
- read and interpret weld drawings and symbols
- demonstrate advanced level SMAW competencies in the vertical position
- demonstrate basic competencies.

COURSE FAB3060: ARC WELDING 4

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB3050 Arc Welding 3

Description: Students apply and extend positional welding skills, by using a variety of common electrodes and thickness of materials.

General Outcomes: *The student will:*

- explain the effects heating and cooling have on a weld and weldment
- demonstrate advanced level sheet metal arc welding (SMAW) competencies in the flat, horizontal and vertical positions
- describe a career related to the welding field
- demonstrate basic competencies.

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COURSE FAB3070: PIPE & TUBULAR WELDING

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB3170 Gas Metal Arc Welding 2

Description: Students develop specific skills related to pipe layout, preparation of pipe/tube joints and welding techniques.

General Outcomes: *The student will:*

- identify health and safety hazards associated with pipe and enclosed vessel welding, and take preventive measures to avoid accident and personal injury to self and others
- describe the advances made in pipe welding, and identify common types of joints and welding procedures
- demonstrate basic pipe/tube preparation and welding competencies
- demonstrate basic competencies.

COURSE FAB3080: AUTOMATED WELDING

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB3170 Gas Metal Arc Welding 2

Description: Students investigate and describe the operation of various manual, semi-automated and automated welding processes and systems used in fabrication industries.

General Outcomes: *The student will:*

- explain how manual, semi-automated and automated welding processes differ from one another
- identify employment and further training opportunities related to production welding
- apply knowledge of advanced welding processes to demonstrate/simulate an automated welding system
- demonstrate basic competencies.

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COURSE FAB3090: SHEET FABRICATION 4 (RADIAL LINE)

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB2100 Sheet Fabrication 3 (Parallel Line)

Description: Students develop specialized skills in cylindrical and conical pattern development and seam construction of ferrous and nonferrous sheet metals.

General Outcomes: *The student will:*

- describe the procedures that are used to lay out a typical cylindrical and conical shape
- demonstrate parallel and radial line pattern making skills
- perform advanced cylindrical and conical sheet stock fabrication skills and processes
- demonstrate basic competencies.

COURSE FAB3110: SHEET FABRICATION 5 (DUCT COMPONENTS)

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB2100 Sheet Fabrication 3 (Parallel Line)

Description: Students apply and develop specialized skills in duct component pattern making and fabrication techniques.

General Outcomes: *The student will:*

- identify common duct components and applications
- demonstrate the principle of triangulation to create a transition pattern
- apply pattern making and sheet metal fabrication skills to create a duct component
- demonstrate basic competencies.

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COURSE FAB3120: FOUNDRY 3 (CORE MOLDING)

Level: Advanced

Theme: Production Systems and Processes

Prerequisite: FAB1120 Foundry 1 (One-piece Pattern)

Description: Students investigate and apply advanced foundry processes to produce a hollow casting, using a sand and core mold.

General Outcomes: *The student will:*

- list and describe common core materials and production processes
- demonstrate advanced sand casting and coring skills and techniques
- create a profile of a trade or occupation within the foundry field
- demonstrate basic competencies.

COURSE FAB3130: PRECISION TURNING 2

Level: Advanced

Theme: Production Systems and Processes

Prerequisite: FAB2130 Precision Turning 1

Description: Students develop specialized lathe skills for thread cutting and taper turning techniques.

General Outcomes: *The student will:*

- demonstrate print reading and job sequencing competencies
- perform safe taper turning and thread cutting set-up procedures
- perform taper turning and thread cutting operations
- demonstrate basic competencies.

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COURSE FAB3140: PRECISION MILLING 2

Level: Advanced

Theme: Production Systems and Processes

Prerequisite: FAB2140 Precision Milling 1

Description: Students develop specialized skills to use vertical and/or horizontal milling machines.

General Outcomes: *The student will:*

- demonstrate print reading and job sequencing competencies
- perform safe vertical and/or horizontal mill set-up procedures
- perform groove keyway and gear cutting operations
- demonstrate basic competencies.

COURSE FAB3150: CNC MILLING (COMPUTER NUMERICAL CONTROL)

Level: Advanced

Theme: Production Systems and Processes

Prerequisite: FAB1130 Principles of Machining

Description: Students develop skills in computer numerical control (CNC) programming to manufacture a three-dimensional product.

General Outcomes: *The student will:*

- demonstrate three-dimensional CNC programming skills
- apply CNC programming and operating skills to manufacture a milled part
- identify further training and employment opportunities related to CNC machining
- demonstrate basic competencies.

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COURSE FAB3160: PREFABRICATION PRINCIPLES

Level: Advanced

Theme: Production Systems and Processes

Prerequisite: FAB2160 Custom Fabrication

Description: Students work in a cooperative learning environment to plan and construct a prefabricated product/structure to meet the specific needs of a client.

General Outcomes: *The student will:*

- perform basic shop drawing take-off skills
- demonstrate advanced level resource management skills
- demonstrate appropriate prefabrication skills and practices
- demonstrate basic competencies.

COURSE FAB3170: GAS METAL ARC WELDING 2

Level: Advanced

Theme: Fabrication Processes

Prerequisite: FAB2070 Gas Metal Arc Welding 1

Description: Students develop specific skills to assess and improve the quality of gas metal arc welding (GMAW) processes, and gain experience using flux cored arc welding (FCAW) processes.

General Outcomes: *The student will:*

- describe the characteristics of a desirable gas metal and flux cored arc weld
- identify strategies to evaluate and improve weld quality
- demonstrate GMAW and FCAW competencies on mild steel plate in the flat, horizontal and vertical positions
- demonstrate basic competencies.

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FASHION STUDIES

B. STRAND RATIONALE AND PHILOSOPHY

Fashion affects all aspects of our daily lives—in the home, in the workplace and in the environment. According to the *Apparel Industry Development Study*:★

> The apparel industry is the second largest employer of Alberta's consumer products industry, after processed foods. The industry comprises about 150 firms, employs over 3 000 people and generates annual wholesale revenues in the vicinity of $150 million. The retailers employ approximately 4 500 full-time workers and generate annual retail revenues of approximately $750 million.

The fashion garment industry itself is a growing economic link between Canada and other nations. Canadian designers are thriving in the international fashion industry.

Fashion Studies, a strand in Career and Technology Studies, involves the study of clothing and textiles in a variety of contexts. It is concerned with the design, production and merchandising of clothing, textiles and accessories.

The Fashion Studies curriculum provides opportunities for students to increase their knowledge of the fashion industry, and provides them with important daily living skills. The curriculum prepares students for their roles as consumers, enables them to explore and prepare for fashion-related careers, and enhances their personal lives by providing a creative outlet.

Fashion Studies may use student-centred or teacher-directed approaches, combining the development of thinking processes and practical skills in concrete, realistic learning situations. Throughout Fashion Studies, students are encouraged to solve problems, make decisions and develop the flexibility needed to adapt quickly to new situations.

Within the philosophy of Career and Technology Studies, *students* in Fashion Studies *will*:

- develop an understanding of the role fashion plays in society and its impact on the individual and family in daily living, in the workplace and on the environment
- practise and achieve competencies in designing, constructing and/or merchandising fashion projects
- develop a greater awareness of the role of fashion-related businesses and industries in society, and the potential for enterprise and innovation within the broad area of fashion

★ Alberta Economic Development and Trade, Industry Development Division, 1988.

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- assess personal interests, abilities and aptitudes relevant to making realistic and satisfying career choices in the fashion industry and auxiliary areas.

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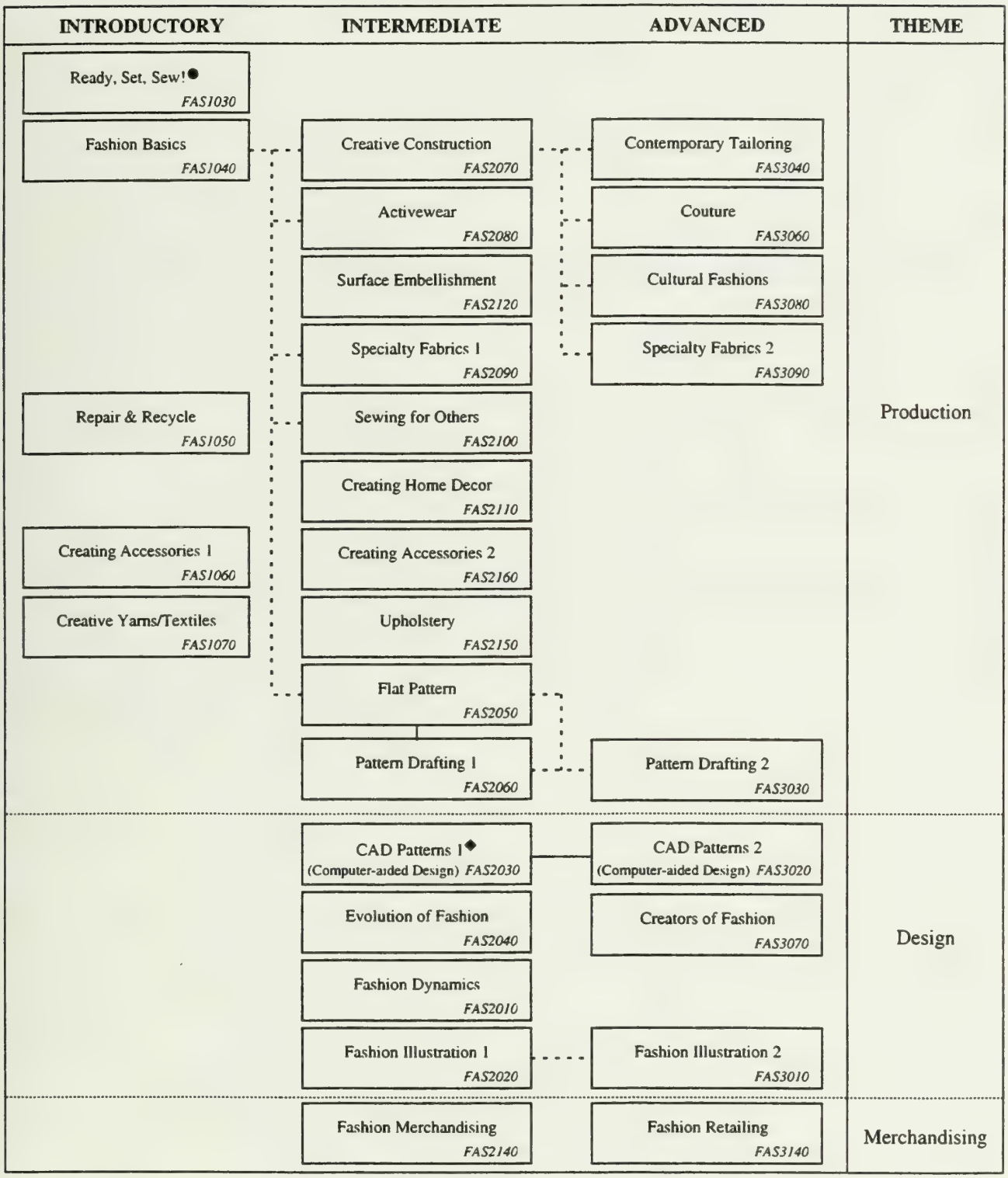
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

● Prerequisite to all modules within the Production Theme, with the possible exceptions of FAS1070, FAS2120, FAS2150, FAS2160.

◆ Refer to specific modules for additional prerequisites.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE FAS1030: READY, SET, SEW!

Level: Introductory

Theme: Production

Prerequisite: None

Module Description: Students learn how to safely use and care for sewing and pressing equipment, and apply these skills in project assembly.

Module Learner Expectations: *The student will:*

- demonstrate safe use and care of sewing equipment
- identify woven, nonwoven and knit fabrics
- identify care symbols
- demonstrate basic sewing, pressing and managing skills while assembling a simple project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS1040: FASHION BASICS

Level: Introductory

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students learn how to determine pattern size, choose a suitable pattern and fabric, make pattern alterations, and prepare the fabric and pattern for layout. Students apply these skills to the assembly of a simple garment.

Module Learner Expectations: *The student will:*

- identify characteristics and care required for selected natural, synthetic and blended fabrics
- identify textile/fabric care information found on a label
- demonstrate and apply basic sewing and management skills in assembling a sewing project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS1050: REPAIR & RECYCLE

Level: Introductory

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students learn to restore or recycle garments by repairing, customizing, redesigning or embellishing the garment. Students use these techniques to update a wardrobe or create something new from something old.

Module Learner Expectations: *The student will:*

- describe garments in terms of fibre/fabric characteristics, quality, cost and maintenance criteria
- demonstrate basic repair procedures
- demonstrate recycling of a textile item
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS1060: CREATING ACCESSORIES 1

Level: Introductory

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students use basic sewing skills and techniques to construct a home or personal accessory.

Module Learner Expectations: *The student will:*

- demonstrate knowledge and skills related to home or personal accessories
- apply time, energy and resource management skills in construction of a project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS1070: CREATIVE YARNS/TEXTILES

Level: Introductory

Theme: Production

Prerequisite: None

Module Description: Students learn about various yarn or textile arts/crafts, and apply these skills to project construction.

Module Learner Expectations: *The student will:*

- investigate several yarn or textile arts/crafts
- demonstrate and apply basic skills and knowledge of yarn or textile arts/crafts
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE FAS2010: FASHION DYNAMICS

Level: Intermediate

Theme: Design

Prerequisite: None

Module Description: Students learn to recognize and apply the elements and principles of design to wardrobe planning.

Module Learner Expectations: *The student will:*

- describe the reasons for wearing clothing
- identify fashion terms
- describe the elements and principles of design and apply these to wardrobe planning
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2020: FASHION ILLUSTRATION 1

Level: Intermediate

Theme: Design

Prerequisite: None

Module Description: Students discover the world of fashion illustration. They learn to sketch a croquis, incorporating simple gestures, and apply these skills to create fashion illustrations.

Module Learner Expectations: *The student will:*

- sketch a technical croquis
- sketch rounded figures incorporating simple gestures
- identify garment styles and design detail
- demonstrate rendering techniques
- demonstrate sketching techniques to create fashion illustrations
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2030: CAD PATTERNS 1 (COMPUTER-AIDED DESIGN)

Level: Intermediate

Theme: Design

Prerequisite: DES1050 CAD Fundamentals (Computer-aided Design) [Design Studies Strand]

Module Description: Students develop and apply knowledge, skills and techniques necessary to operate a personal computer to design and draft patterns for fashion items.

Module Learner Expectations: *The student will:*

- design an A-line skirt, shorts or pants, using a computer
- demonstrate basic flat pattern skills and knowledge by making skirt, shorts or pants design alterations on a computer
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2040: EVOLUTION OF FASHION

Level: Intermediate

Theme: Design

Prerequisite: None

Module Description: Students discover the historical influences on fashion, and relate past fashions to present-day styles.

Module Learner Expectations: *The student will:*

- describe fashion in a historical period, and provide an analysis of how it relates to present-day styles
- describe factors influencing fashion unique to specific time periods
- demonstrate and apply a fashion detail from the past in assembling a sewing project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2050: FLAT PATTERN

Level: Intermediate

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students change a basic skirt or pants pattern into a design of choice, using flat pattern designing techniques, and testing the design by sewing in muslin.

Module Learner Expectations: *The student will:*

- identify methods of designing patterns—flat pattern, drafting and draping
- identify terms, tools and equipment related to flat pattern designing
- demonstrate design techniques for a skirt or pants, using full-, half- or quarter-scale patterns
- demonstrate flat pattern design techniques to a full-size skirt or pants, culminating with the fitting and sewing of a muslin
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2060: PATTERN DRAFTING 1

Level: Intermediate

Theme: Production

Prerequisite: FAS2050 Flat Pattern

Module Description: Students use body measurements to draft a basic skirt or pant. They demonstrate drafting techniques needed to create the desired look, and test the draft by sewing in muslin.

Module Learner Expectations: *The student will:*

- demonstrate drafting techniques for a skirt and/or pants, using full-, half- or quarter-scale patterns
- demonstrate drafting techniques required to create a skirt and/or pants design in muslin
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2070: CREATIVE CONSTRUCTION

Level: Intermediate

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students apply techniques and knowledge of patterns and fabrics to complete a project.

Module Learner Expectations: *The student will:*

- identify basic weaves and common fabric finishes
- demonstrate and apply knowledge and skills related to pattern alterations, fabric choices and intermediate sewing techniques
- apply time, energy and resource management skills in assembling a project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2080: ACTIVEWEAR

Level: Intermediate

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students learn how to make unique, attractive and serviceable activewear.

Module Learner Expectations: *The student will:*

- identify requirements of activewear patterns and fabrics
- identify care for activewear fabrics
- demonstrate correct use of supplies, tools and techniques used in sewing activewear
- demonstrate and apply knowledge and management skills in the assembly of an activewear garment
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2090: SPECIALTY FABRICS 1

Level: Intermediate

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students research, experiment with and produce a project, using a specialty fabric.

Module Learner Expectations: *The student will:*

- identify characteristics of specialty fabrics
- demonstrate and apply knowledge and skills selecting patterns, lining, interfacings and notions specific to the chosen specialty fabric
- demonstrate correct sewing and pressing techniques in the assembly of a project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2100: SEWING FOR OTHERS

Level: Intermediate

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students sew something for someone else. A client may have special requests that may require special measuring, designing, fitting, sewing techniques and/or resources.

Module Learner Expectations: *The student will:*

- demonstrate and apply decision making and sewing techniques in a sewn project for a client
- describe the specific requirements of the selected project
- identify resource management skills used in a project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2110: CREATING HOME DECOR

Level: Intermediate

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students apply design and sewing techniques to create a home decor fashion.

Module Learner Expectations: *The student will:*

- demonstrate knowledge and skills related to home decor
- apply and evaluate time, energy and resource management skills in the assembly of a project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2120: SURFACE EMBELLISHMENT

Level: Intermediate

Theme: Production

Prerequisite: None

Module Description: Students use the skills from this module to embellish a wardrobe or home decor.

Module Learner Expectations: *The student will:*

- demonstrate various types of surface embellishment techniques
- demonstrate and apply specific techniques to a project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2140: FASHION MERCHANDISING

Level: Intermediate

Theme: Merchandising

Prerequisite: None

Module Description: Students learn policies and techniques used by retail operations to sell fashion.

Module Learner Expectations: *The student will:*

- describe key terms as they relate to the merchandising of fashion
- explain advantages and disadvantages of current fabrics/textiles
- identify merchandising policies used by retailers to attract specific customers
- identify specific "auxiliary services" tailored for the fashion business
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS2150: UPHOLSTERY

Level: Intermediate

Theme: Production

Prerequisite: None

Module Description: Students innovate and create, or remove and re-cover, an upholstery item.

Module Learner Expectations: *The student will:*

- identify criteria required to upholster an item
- demonstrate techniques required to create or replace a desired upholstered project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS2160: CREATING ACCESSORIES 2

Level: Intermediate

Theme: Production

Prerequisite: None

Module Description: Students study accessories related to fashion, and produce a fashion accessory. Possibilities include belts, gloves, neckwear, footwear, jewellery and bags.

Module Learner Expectations: *The student will:*

- identify criteria required to produce a fashion accessory
- demonstrate techniques and apply design elements to create a fashion accessory
- describe the creativity, wearability and marketability of the constructed accessory
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE FAS3010: FASHION ILLUSTRATION 2

Level: Advanced

Theme: Design

Prerequisite: None

Module Description: Students create a fashion line, by using technical or impressionistic techniques.

Module Learner Expectations: *The student will:*

- sketch fashion figures to illustrate the technical and the impressionistic approach to fashion design
- identify fashion trends to acquire ideas for inspiration
- demonstrate and apply advanced sketching techniques to create a fashion line
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS3020: CAD PATTERNS 2 (COMPUTER-AIDED DESIGN)

Level: Advanced

Theme: Design

Prerequisite: FAS2030 CAD Patterns 1 (Computer-aided Design)

Module Description: Students, with limited direction, use a personal computer and appropriate software to design and draft patterns for fashion items.

Module Learner Expectations: *The student will:*

- design a bodice and a sleeve pattern, using a computer
- demonstrate basic flat pattern skills and knowledge by making bodice and sleeve design alterations on a computer
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS3030: PATTERN DRAFTING 2

Level: Advanced

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students use body measurements to draft a basic bodice and sleeve, demonstrate drafting techniques needed to create the desired look, and test the draft by sewing in muslin.

Module Learner Expectations: *The student will:*

- demonstrate drafting and design techniques for a bodice and sleeve, using full-, half- or quarter-scale patterns
- demonstrate drafting and flat pattern design techniques to create a design in muslin
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS3040: CONTEMPORARY TAILORING

Level: Advanced

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students create a jacket or coat, using contemporary tailoring techniques.

Module Learner Expectations: *The student will:*

- identify characteristics of a tailored jacket
- identify characteristics that make pattern, fabric, support fabrics and notions acceptable for tailoring
- identify the quality standards of a tailored project
- demonstrate and apply knowledge, skills, time, energy and resource management to pattern alterations, fitting and assembly of a jacket or coat
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS3060: COUTURE

Level: Advanced

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students study past couturiers to create their own haute couture fashions.

Module Learner Expectations: *The student will:*

- describe the origin of couture and its terminology
- identify the equipment necessary to produce couture detailing
- describe couture stitching techniques and construction methods
- demonstrate selected couture techniques in garment construction
- select and present a project
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS3070: CREATORS OF FASHION

Level: Advanced

Theme: Design

Prerequisite: None

Module Description: Students discover the world of fashion designers.

Module Learner Expectations: *The student will:*

- identify terms related to haute couture
- identify fashion influences and contributions by fashion designers
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS3080: CULTURAL FASHIONS

Level: Advanced

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students research and learn about the fashions of other cultures.

Module Learner Expectations: *The student will:*

- identify specific criteria of one cultural fashion
- demonstrate and apply knowledge and skills by creating a fashion item representative of a cultural fashion
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

MODULE FAS3090: SPECIALTY FABRICS 2

Level: Advanced

Theme: Production

Prerequisite: FAS1030 Ready, Set, Sew!

Module Description: Students learn about the characteristics and techniques for preparing, sewing and caring for an advanced specialty fabric. Subsequently, they create and construct a distinctive project.

Module Learner Expectations: *The student will:*

- identify and describe techniques required when handling an advanced specialty fabric
- demonstrate advanced sewing techniques in a specialty fabric project
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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MODULE FAS3140: FASHION RETAILING

Level: Advanced

Theme: Merchandising

Prerequisite: None

Module Description: Students analyze fashion retail terms, operations and trends.

Module Learner Expectations: *The student will:*

- describe basic retail terms
- describe and compare classifications of fashion retail operations
- describe operational store policies and apply this knowledge to evaluate specific fashion retail operations
- identify trends in fashion retailing
- select and present a project from this module
- describe the personal or career relevance of the competencies developed within this module
- demonstrate basic competencies.

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FINANCIAL MANAGEMENT

B. STRAND RATIONALE AND PHILOSOPHY

In our rapidly changing, complex world, the ability to manage our financial affairs is a basic requirement. Financial management is required in all aspects of society and is an essential life skill.

The Financial Management strand of Career and Technology Studies will provide an opportunity for students to learn about the development and use of financial information and to apply this information within the context of business and personal life. The field of financial management offers many occupational opportunities.

Within the philosophy of Career and Technology Studies, *students* in Financial Management *will*:

- develop an appreciation for ethics in personal and business financial management
- develop an awareness of the impact of the economy on self, society and the workplace
- develop basic knowledge, skills and attitudes that have specific applications to financial management and broad career applications to the world of work
- develop an awareness of realistic career choices related to personal interests, abilities and aptitudes; and recognize the need for lifelong learning
- develop decision-making, problem-solving and communicative skills that demonstrate initiative, creativity and flexibility within a rapidly changing financial environment
- use information and technology effectively and efficiently
- link the knowledge, skills and attitudes developed in Financial Management to other curricular areas
- demonstrate the ability to work cooperatively with others
- use community and business partnerships to relate and apply theory to realistic situations
- demonstrate mastery of basic competencies.

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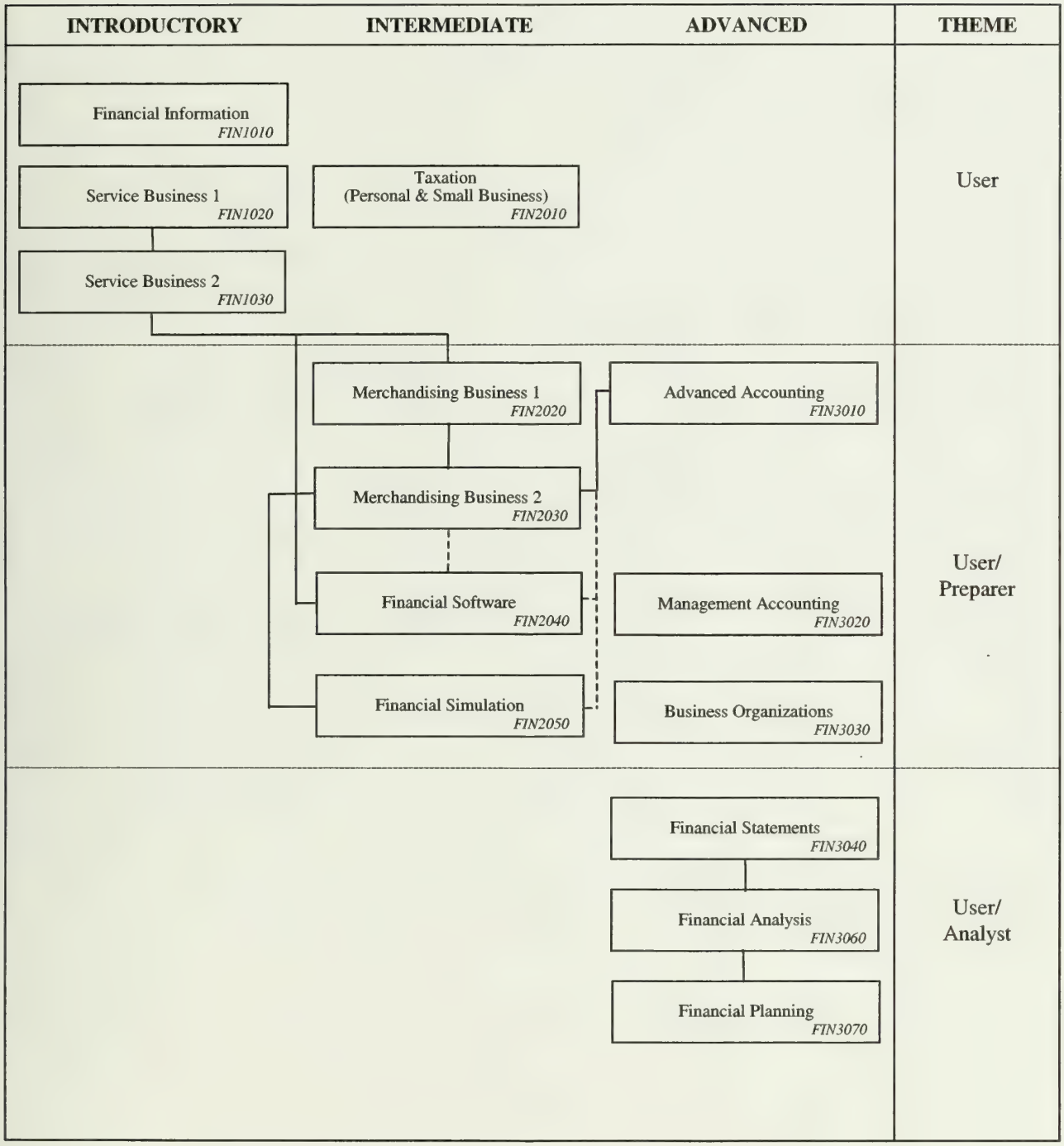
SCOPE AND SEQUENCE



——— Prerequisite - - - - - Recommended sequence

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE FIN1010: FINANCIAL INFORMATION

Level: Introductory

Theme: User

Prerequisite: None

Description: Students explore such concepts as ethics, the economic environment, acquiring and using financial resources, and the effects of government legislation on the finances of an individual and a small business.

General Outcomes: *The student will:*

- explain the importance of ethical conduct
- identify and explain personal and small business financial management
- demonstrate basic competencies.

COURSE FIN1020: SERVICE BUSINESS 1

Level: Introductory

Theme: User

Prerequisite: None

Description: Students are introduced to the accounting cycle. They establish a set of books and record business transactions. Students are also introduced to terminology unique to financial accounting.

General Outcomes: *The student will:*

- identify and apply the steps in the accounting cycle, up to the trial balance, for a service business
- demonstrate basic competencies.

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COURSE FIN1030: SERVICE BUSINESS 2

Level: Introductory

Theme: User

Prerequisite: FIN1020 Service Business 1

Description: Students complete the accounting cycle begun in FIN1020 Service Business 1, and prepare financial statements and a budget. Students also develop an awareness of the many career challenges and opportunities to be found in the financial management field.

General Outcomes: *The student will:*

- identify and apply the steps in the accounting cycle, from the worksheet to the post-closing trial balance, for a service business
- recognize the need for preparing budgets
- examine careers in the financial management field
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE FIN2010: TAXATION (PERSONAL & SMALL BUSINESS)

Level: Intermediate

Theme: User

Prerequisite: None

Description: Students examine the Canadian income tax system through the preparation of a variety of personal and small business income tax returns.

General Outcomes: *The student will:*

- define the Canadian concept of taxation
- apply the concept, by preparing income tax returns
- demonstrate basic competencies.

COURSE FIN2020: MERCHANDISING BUSINESS 1

Level: Intermediate

Theme: User/Preparer

Prerequisite: FIN1030 Service Business 2

Description: Students apply specialized financial accounting procedures associated with the buying and selling of goods in a retail system.

General Outcomes: *The student will:*

- adapt and use accounting procedures associated with the buying and selling of merchandise
- demonstrate basic competencies.

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COURSE FIN2030: MERCHANDISING BUSINESS 2

Level: Intermediate

Theme: User/Preparer

Prerequisite: FIN2020 Merchandising Business 1

Description: Students complete the accounting cycle established in FIN2020 Merchandising Business 1, prepare financial statements, and establish and operate a payroll system.

General Outcomes: *The student will:*

- finalize the steps in the accounting cycle, from the worksheet to the post-closing trial balance, using information from FIN2020 Merchandising Business 1
- prepare a payroll
- demonstrate basic competencies.

COURSE FIN2040: FINANCIAL SOFTWARE

Level: Intermediate

Theme: User/Preparer

Prerequisite: FIN1030 Service Business 2

Description: Students learn how to use an accounting software package that is used in business.

General Outcomes: *The student will:*

- demonstrate efficient use of designated small business accounting software
- demonstrate appropriate workstation management procedures
- demonstrate basic competencies.

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COURSE FIN2050: FINANCIAL SIMULATION

Level: Intermediate

Theme: User/Preparer

Prerequisite: FIN2030 Merchandising Business 2

Description: Students apply accounting principles to realistic business situations, using manual and/or computer simulations based on the records of a proprietorship and/or a partnership.

General Outcomes: *The student will:*

- apply accounting principles to realistic business situations
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE FIN3010: ADVANCED ACCOUNTING

Level: Advanced

Theme: User/Preparer

Prerequisite: FIN2030 Merchandising Business 2

Description: Students apply advanced accounting procedures—including capital assets and uncollectible accounts—used by a variety of businesses. Students also prepare adjustments, using the accrual method of accounting, and examine manufacturing or departmental accounting.

General Outcomes: *The student will:*

- define terms relevant to capital assets, uncollectible accounts, accruals, and manufacturing or departmental accounting
- apply advanced accounting procedures that relate the above terms to realistic business situations
- demonstrate basic competencies.

COURSE FIN3020: MANAGEMENT ACCOUNTING

Level: Advanced

Theme: User/Preparer

Prerequisite: None

Description: Students explain management accounting, which involves optimizing capital assets for maximum return on investments. Students also examine various internal systems used to safeguard business assets.

General Outcomes: *The student will:*

- assess return on investments, by analyzing price/cost and break even point
- examine internal controls used to safeguard organizational assets
- demonstrate basic competencies.

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COURSE FIN3030: BUSINESS ORGANIZATIONS

Level: Advanced

Theme: User/Preparer

Prerequisite: None

Description: Students examine the accounting procedures related to proprietorships, partnerships, corporations and other entities. Students determine the effect the different forms of business ownership have on the equity section of the balance sheet.

General Outcomes: *The student will:*

- describe the organizational differences among various forms of business organization
- compare the owner's equity of different forms of business organization
- demonstrate basic competencies.

COURSE FIN3040: FINANCIAL STATEMENTS

Level: Advanced

Theme: User/Analyst

Prerequisite: None

Description: Students examine the content and structure of financial statements, and prepare customized financial statements for a variety of businesses.

General Outcomes: *The student will:*

- explain how a balance sheet reflects the financial position of a business on a specific date, and explain how the income statement reflects the financial operations of a business for a specific period of time
- adapt the financial statements to various types of businesses
- demonstrate basic competencies.

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COURSE FIN3060: FINANCIAL ANALYSIS

Level: Advanced

Theme: User/Analyst

Prerequisite: FIN3040 Financial Statements

Description: Students use formulas and ratios to evaluate the financial status of business organizations, interpret data, report results and recommend change based on the analysis.

General Outcomes: *The student will:*

- use appropriate data for reporting and decision making
- interpret data that has been obtained, in order to recommend action
- demonstrate basic competencies.

COURSE FIN3070: FINANCIAL PLANNING

Level: Advanced

Theme: User/Analyst

Prerequisite: FIN3060 Financial Analysis

Description: Students explain the value of financial planning for a business. They explore the impact of economic trends, changing world markets and tax implications, all of which must be considered when preparing financial forecasts. The concept of market research is also discussed.

General Outcomes: *The student will:*

- explain the value of financial planning
- design a forecast that incorporates internal and external factors
- demonstrate basic competencies.

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FOODS

B. STRAND RATIONALE AND PHILOSOPHY

Food is one of our most basic personal needs. In addition, food plays a major role in our family, community and careers. In a constantly changing society, our food needs will be met in an increasing variety of ways.

Aside from its essential role in nutrition, food plays a very important role in the provincial and national economies. In Alberta, the agriculture and food industry, which provides quality food for people in the province and around the world, is a major force in the economy. One of every three jobs in Alberta is related to the agriculture and food industry.

An important part of the food industry in Canada is the food services industry, which employs over 600 000 people. This number is expected to rise to almost 800 000 by the year 2000. Occupations in this industry vary widely, as do educational or training requirements. The industry relies heavily on young people to meet its staffing needs. Nearly 50 per cent of individuals working in food and beverage preparation, and related occupations, are between 15 and 24 years of age. About 30 per cent of the adult population in Canada has spent at least some time working in the food services industry.

By developing basic, integrated and career-specific knowledge, skills and attitudes in the context of foods, students will have the ability to adapt to the challenges of change with increased flexibility and confidence. Foods, a strand in Career and Technology Studies, uses the student-centred process approach, combining thinking processes and concrete experience with as realistic an environment as possible, whether that be in an individual, family or workplace context.

Within the philosophy of Career and Technology Studies, *students* in Foods *will*:

- develop an interest in the broad base of food in such a way that they are motivated to continue practising and learning about foods
- develop an awareness of the nutritional importance of food and its role in physical maintenance and wellness
- develop basic knowledge, skills and attitudes through the preparation of a variety of foods in order to lead richer and more fulfilled lives or to enter the food service industry with increased confidence and success
- practise safe and sanitary food handling, and realize the consequences of failing to do so
- foster an understanding and knowledge of the multicultural richness and varied social customs in the preparation and sharing of food
- develop management skills in the selecting, preparing and servicing of food, and assess the impact these decisions might have on the global community.

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SCOPE AND SEQUENCE

INTRODUCTORY	INTERMEDIATE	ADVANCED	THEME
Food Basics✠ *FOD1010*	Food & Nutrition Basics *FOD2010*	Food for the Life Cycle *FOD3010*	Nutrition
	Nutrition & the Athlete *FOD2020*	Nutrition & Digestion *FOD3020*	
	Food Decisions & Health *FOD2030*		
Baking Basics *FOD1020*	Cake & Pastry *FOD2040*	Creative Baking *FOD3030*	Preparation and Presentation
	Yeast Breads & Rolls *FOD2050*	Advanced Yeast Products *FOD3040*	
	Milk Products & Eggs *FOD2060*		
Snacks & Appetizers *FOD1030*	Stocks, Soups & Sauces *FOD2070*	Advanced Soups & Sauces *FOD3050*	
	Vegetables/Fruits/Grains *FOD2080*	Food Presentation *FOD3060*	
	Creative Cold Foods *FOD2090*	Short Order Cooking *FOD3070*	
	Basic Meat Cookery *FOD2100*	Advanced Meat Cookery *FOD3080*	
	Fish & Poultry *FOD2110*	Basic Meat Cutting *FOD3090*	
Meal Planning 1 *FOD1040*	Meal Planning 2 *FOD2120*	Entertaining with Food *FOD3100*	Management
	Vegetarian Cuisine *FOD2130*	Food Processing *FOD3110*	
Fast & Convenience Foods *FOD1050*	Rush Hour Cuisine *FOD2140*	Food Evolution/Innovation *FOD3120*	
	Food Safety & Sanitation *FOD2150*		
	Food Venture *FOD2160*	The Food Entrepreneur *FOD3130*	
Canadian Heritage Foods *FOD1060*	International Cuisine 1 *FOD2170*	International Cuisine 2 *FOD3140*	Social and Cultural

——— Prerequisite - - - - Recommended sequence

✠ Prerequisite to all modules in this strand.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE FOD1010: FOOD BASICS

Level: Introductory

Theme: Nutrition

Prerequisite: None

Module Description: Students learn to make wise food choices and to understand recipes, equipment, care in handling food, and the importance of safe and efficient work habits.

Module Learner Expectations: *The student will:*

- describe factors relating to:
  - food safety
  - safe handling of tools and equipment
- demonstrate working knowledge of a food preparation facility
- demonstrate knowledge and skills in the planning, preparing and evaluating of basic foods
- describe food choices in relation to *Canada's Food Guide to Healthy Eating*
- describe the personal relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD1020: BAKING BASICS

Level: Introductory

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students develop an understanding of basic baking ingredients, by combining them in a variety of ways to make cookies, cakes, muffins and biscuits.

Module Learner Expectations: *The student will:*

- describe the preparation methods and role of key ingredients in cookies, quick breads and butter cakes
- demonstrate correct preparation methods in the production of a variety of cookies, quick breads and butter cakes
- demonstrate knowledge and management skills in the planning, preparing and evaluating of basic baked food products
- describe the personal relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD1030: SNACKS & APPETIZERS

Level: Introductory

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students apply the importance of snacking to the way we eat, by making nutritious, as well as delicious, snacks and appetizers.

Module Learner Expectations: *The student will:*

- describe factors that affect snack choices
- describe snacks in relation to the guidelines in *Canada's Food Guide to Healthy Eating*
- select, prepare and compare various snacks and appetizers
- describe the suitability of a variety of snacks
- describe the personal relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD1040: MEAL PLANNING 1

Level: Introductory

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students begin to develop an understanding of eating and meal requirements through the creative planning, preparing and serving of food.

Module Learner Expectations: *The student will:*

- identify factors influencing food choices
- describe factors contributing to successful meal planning
- demonstrate the importance of consumer skills in selecting foods for meal planning
- plan, prepare and evaluate healthy meals for varying lifestyles and special occasions
- describe the personal relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD1050: FAST & CONVENIENCE FOODS

Level: Introductory

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students consider budget, time, quality of food and food alternatives, by making wise choices in the buying, using and preparing of fast foods and convenience foods.

Module Learner Expectations: *The student will:*

- identify and compare the variety and availability of fast foods and convenience foods
- prepare various fast foods and simple convenience foods
- identify decisions, and evaluate food choices, relating to fast foods and convenience foods
- describe the personal relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD1060: CANADIAN HERITAGE FOODS

Level: Introductory

Theme: Social and Cultural

Prerequisite: FOD1010 Food Basics

Module Description: Students become aware of how food in Canada today reflects the country's history and origins, by examining food patterns and customs, and by analyzing and preparing ethnic foods.

Module Learner Expectations: *The student will:*

- identify and describe ethnic influences on food and food patterns within the community
- describe the significance of food patterns and food customs in Canada's past
- identify and prepare ethnic foods
- describe the personal relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE FOD2010: FOOD & NUTRITION BASICS

Level: Intermediate

Theme: Nutrition

Prerequisite: FOD1010 Food Basics

Module Description: Students learn which foods are crucial to wellness; how such foods affect current performance and future health; and discover how to choose and prepare nutritious, tasty foods.

Module Learner Expectations: *The student will:*

- identify and describe the interrelationships among food choices, nutrients and wellness
- describe the importance of high fibre and low fat diets in ensuring wellness
- interpret nutrition information
- prepare, compare and analyze a wide variety of high quality nutritional foods
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2020: NUTRITION & THE ATHLETE

Level: Intermediate

Theme: Nutrition

Prerequisite: FOD1010 Food Basics

Module Description: Students learn to prepare foods that help athletes to meet their training and performance nutritional needs.

Module Learner Expectations: *The student will:*

- describe the role of food and nutrients in athletic performance
- identify and describe strategies for achieving optimal nutrition for the athlete
- interpret nutrition information and misinformation directed to the athlete
- select, prepare and evaluate foods that will meet the athlete's needs
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2030: FOOD DECISIONS & HEALTH

Level: Intermediate

Theme: Nutrition

Prerequisite: FOD1010 Food Basics

Module Description: Students learn how to balance the energy equation, using strategies for food intake analysis, and by preparing appropriate foods that help the body be the best it can.

Module Learner Expectations: *The student will:*

- describe the relationships among body image, body composition, wellness and eating disorders
- describe strategies for achieving and maintaining healthy body composition
- identify and critique diets and diet aids
- select, prepare and evaluate foods suitable for achieving and maintaining weight loss or weight gain
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2040: CAKE & PASTRY

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students expand their knowledge and skills in the production of a variety of cakes and pastries.

Module Learner Expectations: *The student will:*

- identify the role of cakes and pastries in Canadian cuisine, considering nutrition, cultural and social traditions
- describe the function of ingredients in the production of cakes and pastries
- prepare and evaluate cakes and pastries, demonstrating conventional techniques
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2050: YEAST BREADS & ROLLS

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students describe the role of ingredients and use specialized skills in working with yeast.

Module Learner Expectations: *The student will:*

- identify and describe the factors involved in the preparation of yeast products
- prepare and evaluate a variety of yeast products
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2060: MILK PRODUCTS & EGGS

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students develop skills with milk products and eggs, and compare the various products available, what they contribute to cooked foods and how they are best used.

Module Learner Expectations: *The student will:*

- identify and compare various milk products, considering nutritive value, processing and handling
- describe the nutritive value, grading and handling of eggs
- describe the role of eggs in various cooking applications
- demonstrate the principles of milk cookery and egg cookery in the preparation and evaluation of a variety of products
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2070: STOCKS, SOUPS & SAUCES

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students combine stocks with various thickening agents to produce basic stocks, hearty soups and foundation sauces.

Module Learner Expectations: *The student will:*

- identify the ingredients used in the preparation of white and brown stocks
- describe the key thickening and flavouring agents in the production of sauces and soups
- demonstrate correct techniques in the preparing and safe handling of white and brown stocks
- prepare and evaluate clear and cream soups and foundation sauces
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2080: VEGETABLES/FRUITS/GRAINS

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students learn about the wide range of vegetable, fruit and grain products available, and how to retain their nutritional value and quality through a variety of cooking methods.

Module Learner Expectations: *The student will:*

- describe vegetable, fruit and grain products in terms of:
  - variety of types and forms
  - care, handling and storage
  - nutritional value
  - methods and effects of cooking
- prepare and evaluate vegetable, fruit and grain products, using a variety of cooking methods
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2090: CREATIVE COLD FOODS

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students learn to combine nutrition and creativity in the preparation of salads and sandwiches.

Module Learner Expectations: *The student will:*

- describe salad, salad dressing and sandwich ingredients in terms of:
  - types
  - availability
  - handling
  - nutritional value and nutrition concerns
- identify and compare the various roles that salads may play in a meal or menu
- prepare and evaluate a variety of salads, salad dressings and sandwiches, using diverse ingredients
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2100: BASIC MEAT COOKERY

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students learn to differentiate between cuts of meat, and apply this to tenderizing and cooking methods.

Module Learner Expectations: *The student will:*

- describe the importance of inspecting and grading of meat
- identify and describe the factors that affect the tenderness of meat, both before and as a result of cooking
- identify and describe appropriate cooking methods for a wide variety of cuts of meat
- prepare and evaluate various cuts of meat, employing moist and dry heat cooking methods
- demonstrate safe practices in the handling and preparing of meats
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2110: FISH & POULTRY

Level: Intermediate

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students learn the nutritional value of fish and poultry and how to select, handle and prepare them.

Module Learner Expectations: *The student will:*

- identify and describe the variety of fish and poultry products available, considering:
  - types, forms and grades
  - nutritional value
  - methods and effects of cooking
  - safe handling and appropriate storage
- demonstrate boning, filleting, carving, finishing and presenting techniques, using a variety of fish and poultry products
- prepare and evaluate a variety of fish and poultry products, using moist and dry cooking methods
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2120: MEAL PLANNING 2

Level: Intermediate

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students learn strategies for planning and creating satisfying meals that accommodate busy schedules or strained budgets.

Module Learner Expectations: *The student will:*

- describe the impact of evolving eating trends on individuals, families and the community
- identify and describe strategies for food planning to accommodate the various needs of individuals and families
- plan, prepare and evaluate foods and meals to accommodate the various needs of individuals and families
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2130: VEGETARIAN CUISINE

Level: Intermediate

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students learn how to create healthy, wholesome vegetarian diets, by preparing suitable foods in a variety of ways.

Module Learner Expectations: *The student will:*

- describe the rationales for various vegetarian eating patterns
- identify the critical nutritional elements of wholesome vegetarian eating
- describe meal plans suitable to vegetarian eating patterns
- prepare and evaluate foods within the context of vegetarian meal planning
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2140: RUSH HOUR CUISINE

Level: Intermediate

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students learn unique and quick ways to create nutritious and delicious dishes, using simple ingredients and prepared and convenience foods.

Module Learner Expectations: *The student will:*

- describe the influence of lifestyle and resources on the provision of nutritious and satisfying foods
- identify and describe alternatives to enhance the ease and speed of food preparation
- adapt, prepare and evaluate foods to enhance the ease and speed of preparation
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2150: FOOD SAFETY & SANITATION

Level: Intermediate

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students learn about food-borne illnesses and the importance of food safety and sanitation training for anyone handling food in personal, as well as commercial, applications.

Module Learner Expectations: *The student will:*

- describe the relationships among foods, micro-organisms and food-borne illness
- describe measures to prevent food contamination and to control the growth of micro-organisms in food
- describe the role of regulatory agencies and safety programs, such as the Workplace Hazardous Materials Information System (WHMIS), in maintaining a safe and sanitary environment
- demonstrate the safe handling of food in a manner consistent with section 43 of the *Public Health Act* Food Regulation
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

MODULE FOD2160: FOOD VENTURE

Level: Intermediate

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students develop entrepreneurial skills through the planning and creation of a food venture.

Module Learner Expectations: *The student will:*

- identify and describe the safety issues relating to the preparation of food for a customer
- show a project plan for a simple food venture
- prepare and evaluate food for a food venture
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE FOD2170: INTERNATIONAL CUISINE 1

Level: Intermediate

Theme: Social and Cultural

Prerequisite: FOD1010 Food Basics

Module Description: Students discover other cultures by exploring their cuisine. They learn a variety of international cooking techniques, and use specialized tools to prepare food for a typical day or for a cultural event.

Module Learner Expectations: *The student will:*

- describe the relationship of food to culture
- identify and compare the foods of a variety of cultures
- prepare foods representative of a variety of cultures
- describe the personal or career relevance of the competencies developed within the module
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE FOD3010: FOOD FOR THE LIFE CYCLE

Level: Advanced

Theme: Nutrition

Prerequisite: FOD1010 Food Basics

Module Description: Students describe how life cycle needs change, and demonstrate how to meet the challenges of each stage, through preparation techniques and the adapting of foods to satisfy all ages.

Module Learner Expectations: *The student will:*

- describe the role food plays in the development, enhancement and maintenance of physical, emotional and social wellness throughout the life cycle and for individuals with special needs
- prepare and evaluate foods for the enhancement of wellness throughout the life cycle
- identify and describe community nutrition programs
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3020: NUTRITION & DIGESTION

Level: Advanced

Theme: Nutrition

Prerequisite: FOD1010 Food Basics

Module Description: Students learn about nutrition and how the body processes food, by appraising current nutritional theories/issues and dietary needs.

Module Learner Expectations: *The student will:*

- describe the processes of digestion, absorption and metabolism in relation to nutrient composition
- explain the role of water, minor vitamins and minerals in achieving and maintaining wellness
- describe nutrient intake, food patterns and diet therapies, considering the prevention and management of disease
- interpret current nutrition controversies
- prepare meal plans with specified nutrient composition
- prepare and evaluate foods for specified meal plans
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3030: CREATIVE BAKING

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students learn about specialty cakes and pastry products, by selecting and creating various specialty cakes, pastries, desserts and a major baked project, such as a gingerbread house or a wedding cake.

Module Learner Expectations: *The student will:*

- prepare a variety of specialty cakes, pastries and yeast products that emphasize refinement of baking knowledge and skills
- prepare various specialty desserts, representative of the world's great cuisines
- demonstrate creativity and flair in the presentation of specialty baking
- prepare a major project that demonstrates advanced baking skills and creativity in presentation
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

MODULE FOD3040: ADVANCED YEAST PRODUCTS

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students further their skills in the handling of yeast doughs through the preparation of braided breads, fancy dinner rolls, doughnuts, croissants and danishes. Consistency in product quality is emphasized.

Module Learner Expectations: *The student will:*

- explain and apply the knowledge and skills necessary to the production of a variety of advanced yeast products
- identify multicultural influences on yeast products
- prepare and evaluate various advanced yeast products
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3050: ADVANCED SOUPS & SAUCES

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students learn the techniques and ingredients of classic cuisine through the preparation of traditional soups and sauces, and by adapting them for the trend toward lighter eating and nouveau cuisine.

Module Learner Expectations: *The student will:*

- identify the ingredients and describe the techniques for the production of a complete repertoire of soups, the foundation sauces and their derivatives
- describe the nutritional implications of various adaptations to soups and sauces
- prepare and evaluate a repertoire of soups, the foundation sauces and their derivatives
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

MODULE FOD3060: FOOD PRESENTATION

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students develop creativity and flair while learning the techniques of tempting and artistic food presentation.

Module Learner Expectations: *The student will:*

- identify the principles of design and their application to the preparation and presentation of foods
- identify costs involved in the presentation of foods
- demonstrate a variety of techniques for the creative presentation of foods
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3070: SHORT ORDER COOKING

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students develop foundation skills in the preparation and principles underlying short order cookery.

Module Learner Expectations: *The student will:*

- identify and apply knowledge of foods prepared, techniques employed and equipment used in the operation of the short order kitchen
- demonstrate skills for the safe and efficient operation of the short order kitchen
- demonstrate the skills and techniques necessary to the preparation and cooking of a large variety of short order items
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

MODULE FOD3080: ADVANCED MEAT COOKERY

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students develop further awareness of the different types of meats available, and of meat cookery, through the preparation of a variety of meat dishes.

Module Learner Expectations: *The student will:*

- identify the composition and structure of domestic meat products, and select appropriate cooking methods for them
- identify and describe moist and dry heat cookery methods
- prepare and evaluate a wide range of cuts of meat and meat products representative of a cross section of meat species
- prepare a meat dish representative of a specific culture
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3090: BASIC MEAT CUTTING

Level: Advanced

Theme: Preparation and Presentation

Prerequisite: FOD1010 Food Basics

Module Description: Students gain skills in meat cutting that may be a stepping-stone to a career in the retail or wholesale meat cutting industry.

Module Learner Expectations: *The student will:*

- identify the processing and handling practices in the transformation of the carcass into cuts
- describe the wholesale and retail cuts of various carcasses
- demonstrate the correct breakdown of beef, pork, lamb and/or veal carcasses into wholesale and retail cuts
- demonstrate skills in the preparation of meats for cooking
- demonstrate proficient and safe operation of power and hand tools used by the butcher
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

MODULE FOD3100: ENTERTAINING WITH FOOD

Level: Advanced

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students plan and prepare food for an event, and develop organizational skills that may be used in the hospitality industry, at home or in entrepreneurial endeavours.

Module Learner Expectations: *The student will:*

- identify and describe safe food handling procedures involved in large-scale food events
- identify and describe the factors of planning and staging an entertainment event that includes food
- plan, prepare and evaluate food for an entertainment event
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3110: FOOD PROCESSING

Level: Advanced

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students explore how technology affects our food supply, by using a variety of methods to process fresh foods.

Module Learner Expectations: *The student will:*

- describe factors affecting food safety and food spoilage in processed foods
- identify and describe various ways of processing and preserving food
- identify the impact of technological developments on foods and the food supply
- employ basic technology in the processing and preserving of a wide variety of foods
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

MODULE FOD3120: FOOD EVOLUTION/INNOVATION

Level: Advanced

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students explore how food has changed and what foods may be eaten in the future, prepare a wide variety of foods, and learn how they evolved.

Module Learner Expectations: *The student will:*

- describe the impact of food acquisition on the culture and society in which people live
- describe how food patterns, especially those in Canada, have evolved through the interaction of cultures and people
- identify relationships among consumers, marketplace and technology as food evolves
- identify factors influencing food patterns: past, present and future
- prepare and evaluate foods that are examples of food evolution
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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MODULE FOD3130: THE FOOD ENTREPRENEUR

Level: Advanced

Theme: Management

Prerequisite: FOD1010 Food Basics

Module Description: Students plan, test and market a food product or products.

Module Learner Expectations: *The student will:*

- identify and describe a variety of food trends
- identify food ventures within the community
- identify appropriate regulations and describe procedures for ensuring food safety in the implementation of a particular food venture
- select, plan, prepare and analyze a food venture
- show a project plan for a food venture describing the entrepreneurial potential
- prepare and evaluate food for the venture
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

MODULE FOD3140: INTERNATIONAL CUISINE 2

Level: Advanced

Theme: Social and Cultural

Prerequisite: FOD1010 Food Basics

Module Description: Students explore, in depth, the cuisine of another country in order to appreciate the richness of its history and culture. They discover its foods, experience traditional cooking methods, and learn about food customs.

Module Learner Expectations: *The student will:*

- identify and describe the various roles that food plays within a specific culture
- prepare and evaluate foods and meals representative of a specific culture
- describe the personal or career relevance of the competencies developed within the module, and identify labour market dynamics that may be significant for career choices
- demonstrate basic competencies.

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FORESTRY

B. STRAND RATIONALE AND PHILOSOPHY

Forests are a source of natural wealth and cover almost two-thirds of Alberta. The resources found on or beneath these public lands contribute to our economy and quality of life. Forested lands in Alberta and Canada provide wildlife habitats, vital watersheds, grazing lands, outdoor recreation and tourism opportunities, and support the development of the forest products industry.

Achieving harmony among the diverse and sometimes competing needs associated with forested lands is an important and continuing task. Through public involvement and a team approach, integrated resource management provides a process for achieving balanced use of forest resources.

Recently, global levels of public concern for forests has expanded to embrace practices that ensure sustainable use of forest ecosystems. Such sustainable use of resources and the environment today will not damage prospects for their continued use by future generations.★

Forestry, a strand in Career and Technology Studies, will provide opportunities for students to examine the dynamics of forest ecosystems, as well as the many benefits and opportunities associated with forests. Conservation is viewed throughout this strand as a process for managing human use of the forest environment to ensure such use is sustainable. Students will develop practical knowledge of industry practices that support the integrated and sustainable development of forest resources.

Students in Forestry will develop the knowledge, skills, attitudes, motivation and commitment to work individually and collectively, as private citizens and members of the work force, toward the conservation and responsible use of water, land, air, forests and wildlife. Within the philosophy of Career and Technology Studies, *students* in Forestry *will*:

- develop greater awareness of the economic, environmental and social significance of the forest resource in Alberta and the rest of the world, and the benefits and costs of resource development

★ Parks Canada and the Canadian Wildlife Service. *The Nature of Canada: A Primer on Spaces and Species.* Ottawa, ON: Environment Canada, 1993.

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- describe relationships among production, processing and marketing systems within the forest products industry

- describe technologies and research programs designed to develop, conserve, protect, enhance and sustain the productivity of forested lands

- translate sustainable development and conservation goals into viable plans for managing use of the forest resource

- develop competencies and behaviours that have broad application to environmental career paths, and specific application to careers within Alberta's forest industries.

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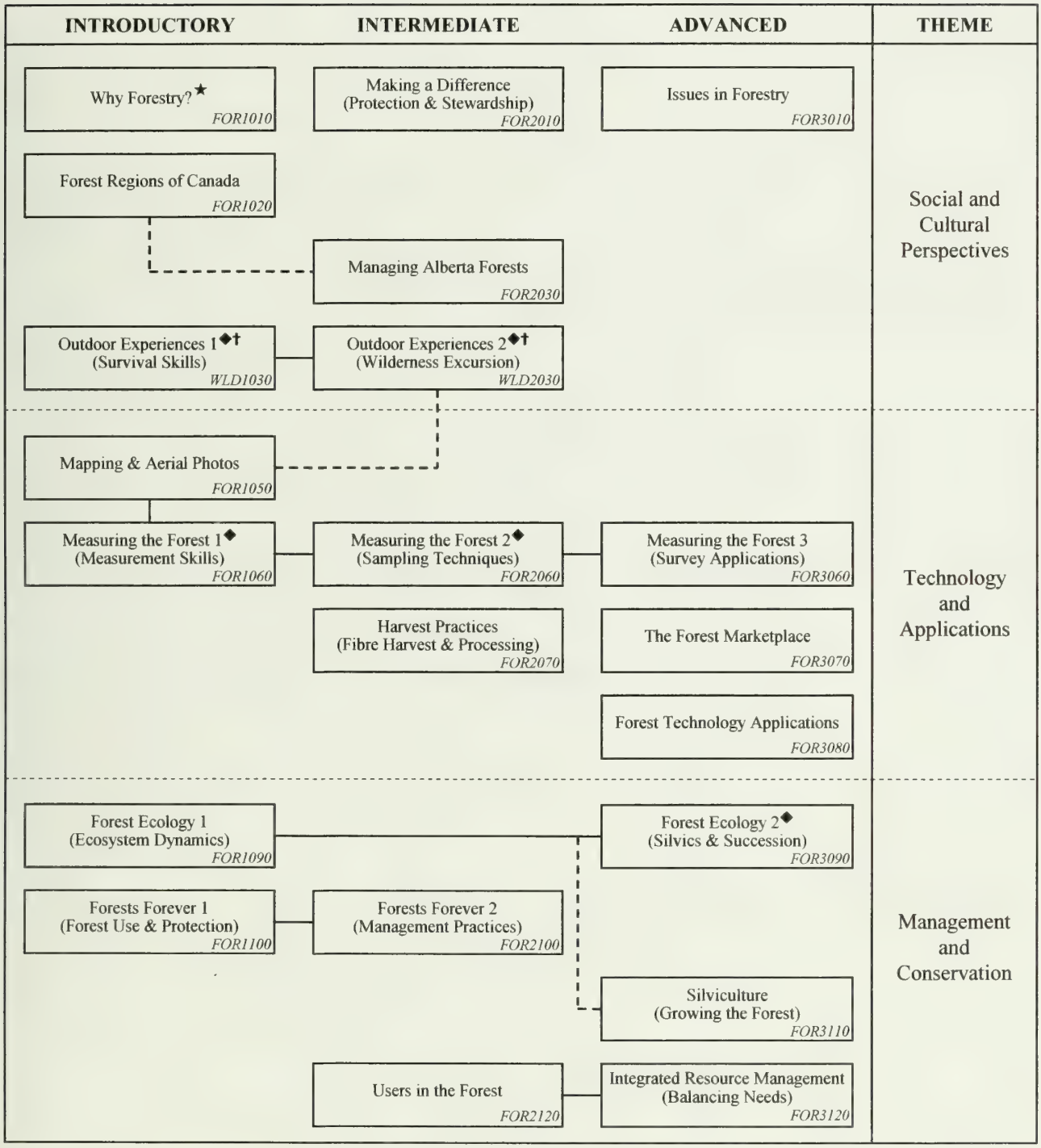
SCOPE AND SEQUENCE


INTRODUCTORY
INTERMEDIATE
ADVANCED
THEME
Why Forestry? ★ FOR1010
Making a Difference (Protection & Stewardship) FOR2010
Issues in Forestry FOR3010
Forest Regions of Canada FOR1020
Managing Alberta Forests FOR2030
Outdoor Experiences 1 ◆† (Survival Skills) WLD1030
Outdoor Experiences 2 ◆† (Wilderness Excursion) WLD2030
Social and Cultural Perspectives
Mapping & Aerial Photos FOR1050
Measuring the Forest 1 ◆ (Measurement Skills) FOR1060
Measuring the Forest 2 ◆ (Sampling Techniques) FOR2060
Measuring the Forest 3 (Survey Applications) FOR3060
Harvest Practices (Fibre Harvest & Processing) FOR2070
The Forest Marketplace FOR3070
Forest Technology Applications FOR3080
Technology and Applications
Forest Ecology 1 (Ecosystem Dynamics) FOR1090
Forest Ecology 2 ◆ (Silvics & Succession) FOR3090
Forests Forever 1 (Forest Use & Protection) FOR1100
Forests Forever 2 (Management Practices) FOR2100
Silviculture (Growing the Forest) FOR3110
Users in the Forest FOR2120
Integrated Resource Management (Balancing Needs) FOR3120
Management and Conservation

——— Prerequisite - - - - Recommended sequence

★ Course provides a strong foundation for further learning in this strand.
◆ Refer to specific courses for additional prerequisites.
† Course is also offered in Wildlife.

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE FOR1010: WHY FORESTRY?

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Description: Students explain the social, economic and environmental significance of forests, describe the impact of individuals on forests, and identify career opportunities in forestry.

General Outcomes: *The student will:*

- describe the social, economic and environmental significance of forests
- explain how personal needs, wants, beliefs and actions may influence the forest resource
- identify career opportunities relevant to forestry
- demonstrate basic competencies.

COURSE FOR1020: FOREST REGIONS OF CANADA

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Description: Students identify factors that determine the distribution of forests, as well as research forest regions of Canada with an emphasis on specific species and forest associations found in Alberta.

General Outcomes: *The student will:*

- identify factors that determine the type and distribution of forests
- locate and describe the forest regions of Canada
- identify and describe trees that grow in specific regions of Canada and Alberta
- demonstrate basic competencies.

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COURSE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS)

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: Emergency First Aid (current certification)

Description: Students demonstrate basic skills required for responsible participation in a range of outdoor activities.

General Outcomes: *The student will:*

- demonstrate knowledge and skills necessary for responsible outdoor experiences
- conduct safe outdoor activities that have minimal environmental impact
- demonstrate basic competencies.

COURSE FOR1050: MAPPING & AERIAL PHOTOS

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Description: Students interpret information from different types of maps and aerial photographs used in the forestry industry.

General Outcomes: *The student will:*

- describe different types of maps and aerial photographs used in forestry
- interpret and apply information from maps and aerial photographs
- demonstrate procedures used to create maps
- identify careers in the forest industry relevant to mapping and aerial photography
- demonstrate basic competencies.

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COURSE FOR1060: MEASURING THE FOREST 1 (MEASUREMENT SKILLS)

Level: Introductory

Theme: Technology and Applications

Prerequisite: FOR1050 Mapping & Aerial Photos
Emergency First Aid (current certification)

Description: Students demonstrate basic forest measurement skills, and apply these skills to sample fibre values in a forested region.

General Outcomes: *The student will:*

- explain the goals and techniques of conducting forest surveys
- demonstrate basic compass and measurement skills used in forest inventory practices
- gather sample data regarding fibre volumes in a forested region
- demonstrate basic competencies.

COURSE FOR1090: FOREST ECOLOGY 1 (ECOSYSTEM DYNAMICS)

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Description: Students investigate forest ecosystems, and explain the structure and functioning of trees.

General Outcomes: *The student will:*

- describe interrelationships among elements in the forest ecosystem
- describe structural units of the tree and their function in performing life processes
- demonstrate basic competencies.

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COURSE FOR1100: FORESTS FOREVER 1 (FOREST USE & PROTECTION)

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Description: Students describe past and present uses of Canada's forests, and explain how research and technology assist in forest management.

General Outcomes: *The student will:*

- describe past and present uses of forests in Alberta and Canada
- explain how the consumptive and nonconsumptive use of forests has created a need for conservation and sustainable management of forested regions
- describe the role of research and technology in forest protection
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE FOR2010: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Description: Students analyze the impact of attitudes, actions and lifestyles on forests, and propose individual and shared actions that foster environmental stewardship.

General Outcomes: *The student will:*

- describe the impact of personal attitudes, actions and lifestyle on the forest resource
- explain strategies for reducing, reusing and recycling
- demonstrate, through personal and shared actions, commitment to environmental responsibility/citizenship
- demonstrate basic competencies.

COURSE FOR2030: MANAGING ALBERTA FORESTS

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Description: Students research agencies and structures used to manage forested lands in Alberta.

General Outcomes: *The student will:*

- explain how Alberta's forested lands are managed
- describe government legislation and policies that influence the use of Alberta's forest resource
- explain methods of allocating land and timber in forest management
- demonstrate basic competencies.

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COURSE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: WLD1030 Outdoor Experiences 1 (Survival Skills)
Emergency First Aid (current certification)

Description: Students plan, prepare for and conduct an extended outdoor wilderness trip.

General Outcomes: *The student will:*

- present a plan for an extended outdoor wilderness trip
- conduct and conclude, safely, an extended outdoor wilderness trip with minimal impact on the environment
- demonstrate basic competencies.

COURSE FOR2060: MEASURING THE FOREST 2 (SAMPLING TECHNIQUES)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: FOR1060 Measuring the Forest 1 (Measurement Skills)
Emergency First Aid (current certification)

Description: Students research current forest inventory practices, and demonstrate appropriate strategies for sampling the fibre and nonfibre values of forests.

General Outcomes: *The student will:*

- describe random and systematic sampling techniques for gathering information about the forest resource
- gather sample data regarding fibre and nonfibre values in a forested region
- demonstrate basic competencies.

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COURSE FOR2070: HARVEST PRACTICES (FIBRE HARVEST & PROCESSING)

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Description: Students research the steps involved in harvesting and processing the forest fibre resource.

General Outcomes: *The student will:*

- identify major components of a plan for a forest harvest
- describe the mechanics of harvesting trees
- explain techniques used in fibre utilization and product formation
- describe career opportunities relevant to forest harvesting and fibre use
- demonstrate basic competencies.

COURSE FOR2100: FORESTS FOREVER 2 (MANAGEMENT PRACTICES)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: FOR1100 Forests Forever 1 (Forest Use & Protection)

Description: Students explain Alberta's forest management goals, and describe the current management practices used to address these goals.

General Outcomes: *The student will:*

- explain the goals of Alberta forest management
- identify different types of forest use and the views and values of different users in the forest
- describe sustainable management practices within the context of Alberta's forested lands
- demonstrate basic competencies.

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COURSE FOR2120: USERS IN THE FOREST

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Description: Students identify different forest users, and explain the planning principles used to develop an integrated resource management plan.

General Outcomes: *The student will:*

- identify different uses of the forest and the needs of each forest user
- explain principles of multiple and integrated land use
- describe a plan for integrated resource management
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE FOR3010: ISSUES IN FORESTRY

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Description: Students analyze current local and global issues in forest management, and demonstrate individual and shared actions that foster environmental stewardship.

General Outcomes: *The student will:*

- describe alternatives and consequences associated with current issues in forest management
- compare and contrast issues and trends involving Canada's forests with similar issues and trends in other parts of the world
- demonstrate individual and shared actions that foster the sustainable management of forested regions
- demonstrate basic competencies.

COURSE FOR3060: MEASURING THE FOREST 3 (SURVEY APPLICATIONS)

Level: Advanced

Theme: Technology and Applications

Prerequisite: FOR2060 Measuring the Forest 2 (Sampling Techniques)

Description: Students explain management applications of data collected from a forest survey, and examine the role of technology in current forest inventory practices.

General Outcomes: *The student will:*

- explain the applications of forest survey data in resource management
- describe the role of technology in current forest inventory practices
- explain career opportunities relevant to forest measurement
- demonstrate basic competencies.

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COURSE FOR3070: THE FOREST MARKETPLACE

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Description: Students describe the range of consumer products and services derived from Canada's forests, and research the production and marketing of these forest products.

General Outcomes: *The student will:*

- describe fibre and nonfibre products and services derived from Canada's forests
- explain processes used in developing fibre and nonfibre forest products and services in Canada and Alberta
- identify market trends, and develop a marketing plan for a forest product or service
- explain career opportunities relevant to developing and marketing forest products
- demonstrate basic competencies.

COURSE FOR3080: FOREST TECHNOLOGY APPLICATIONS

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Description: Students examine research and technological applications in the forest industry, and examine changing career opportunities in the forestry sector.

General Outcomes: *The student will:*

- describe different areas of forest research presently being conducted in Canada and Alberta
- cite examples of current and emerging technologies used in the forest industry
- explain career opportunities and trends relevant to the forestry sector
- demonstrate basic competencies.

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COURSE FOR3090: FOREST ECOLOGY 2 (SILVICS & SUCCESSION)

Level: Advanced

Theme: Management and Conservation

Prerequisite: FOR1090 Forest Ecology 1 (Ecosystem Dynamics) or Biology 20
Emergency First Aid (current certification)

Description: Students investigate the interrelationships among soil, water, air, trees and the environment, and explain how forests change over time as a result of these interrelationships.

General Outcomes: *The student will:*

- explain the effects of soil, air and water characteristics on forest ecosystems
- identify factors that determine the presence of tree species and forest ecosystems in particular environments
- explain the process of change in a forest environment
- demonstrate basic competencies.

COURSE FOR3110: SILVICULTURE (GROWING THE FOREST)

Level: Advanced

Theme: Management and Conservation

Prerequisite: None

Description: Students demonstrate knowledge of the techniques used to establish, grow and harvest tree crops.

General Outcomes: *The student will:*

- describe silviculture and the silvics of Alberta tree species
- demonstrate practices used to establish a stand of trees and manipulate growing conditions to favour particular species
- describe and compare methods of harvesting tree species
- explain career opportunities relevant to silviculture
- demonstrate basic competencies.

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COURSE FOR3120: INTEGRATED RESOURCE MANAGEMENT (BALANCING NEEDS)

Level: Advanced

Theme: Management and Conservation

Prerequisite: FOR2120 Users in the Forest

Description: Students develop and present an integrated plan for sustainable development of the forest resource.

General Outcomes: *The student will:*

- describe basic forest management principles
- develop a plan for sustainable development and integrated use of forested land
- demonstrate basic competencies.

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INFORMATION PROCESSING

B. STRAND RATIONALE AND PHILOSOPHY

Information Processing, a strand in Career and Technology Studies, represents the study of electronic technologies as they apply to personal use and the business environment.

As we move more rapidly into the information age, it is crucial that students are able to use electronic technologies to access and manipulate information in an efficient manner. Accurate, timely information is the basis for sound decision making and effective communication.

As students build confidence in their understanding of the various information processing tools and procedures, they will be able to transfer their knowledge and skill to a wide range of contexts. They will also be better able to adapt to the continual changes caused by the evolving technologies.

To understand the shift from the *industrial society* toward the *information age*, it is important that a student understands the significance of the current technological development, of how technology affects an individual's daily life and of the impact that technology has on the world of work. Within this perspective, Information Processing provides for the development of:

- a meaningful study of technological trends
- an understanding of the systems that relate in whole or in part to the management of information
- an understanding of the ethical and societal issues concerning technological development and its impact on society
- technological skills and knowledge designed for personal use
- technological skills and knowledge that transfer to other curriculum areas
- technological skills and knowledge required for the world of work.

Students will learn to input, process and output information in the following areas:

- system operations
- text/data input
- productivity software
- applied processing
- dynamic environment
- programming (procedure-oriented and object-oriented).

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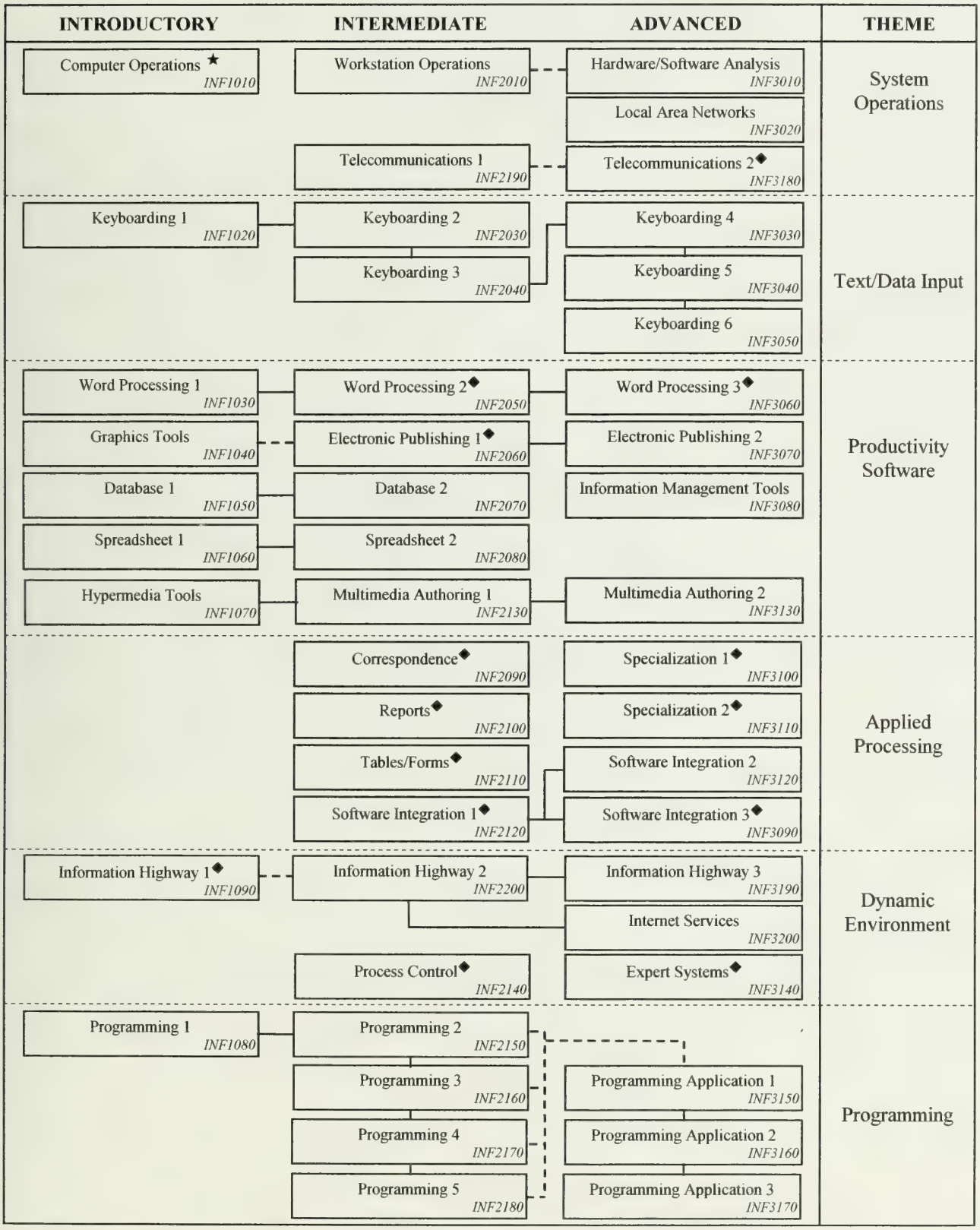
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

◆ Refer to specific courses for additional prerequisites.

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE INF1010: COMPUTER OPERATIONS

Level: Introductory

Theme: System Operations

Prerequisite: None

Description: Students develop personal use skills basic to all courses in the Information Processing strand in the following applications: file management, basic hardware and software operations, text entry and workstation routines.

General Outcomes: *The student will:*

- demonstrate basic file management skills
- enter text and data, using the proper touch keyboarding technique
- identify components of a computer workstation and basic functions of a computer
- describe one or more recent initiatives or issues in technological development
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF1020: KEYBOARDING 1

Level: Introductory

Theme: Text/Data Input

Prerequisite: None

Description: Students develop accurate touch keystroking of text and data appropriate to personal use and the application of efficient workstation procedures.

General Outcomes: *The student will:*

- demonstrate keyboarding competence:
  - text entry at 20 words per minute (wpm)
  - numeric entry at 80 keystrokes per minute (kpm)
  - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF1030: WORD PROCESSING 1

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students develop skill in using basic commands and functions in word processing software, including document editing, and the formatting and printing of reports, correspondence and tables suitable for personal use applications.

General Outcomes: *The student will:*

- demonstrate correct use of software functions, by producing mailable, properly formatted:
  - paginated reports with headings and references
  - letters with basic components
  - two-column tables with main headings and subheadings
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF1040: GRAPHICS TOOLS

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students learn the basic commands and functions of computer graphics software, including bitmapped graphics (paint program) and vector graphics (draw program). Students also develop basic skills in manipulating existing graphics, as well as in producing their own graphics.

General Outcomes: *The student will:*

- demonstrate the basic elements and principles of design, by using computer software graphics tools to:
  - duplicate graphics designs
  - create graphics layouts
- demonstrate use of software functions
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF1050: DATABASE 1

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students are introduced to the basic commands and functions of database software, and demonstrate how this software can be used as a personal tool in data and information management.

General Outcomes: *The student will:*

- demonstrate basic electronic database software competence, by:
  - creating databases
  - manipulating data and preparing reports
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF1060: SPREADSHEET 1

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students have an opportunity to use basic functions and commands in spreadsheet software for general data manipulation and personal record keeping.

General Outcomes: *The student will:*

- demonstrate basic electronic spreadsheet software competence, by:
  - creating spreadsheets
  - manipulating data and preparing chart graphs
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF1070: HYPERMEDIA TOOLS

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students develop basic skills with tools used for computerized presentations involving text, data, graphics, sound and animation.

General Outcomes: *The student will:*

- demonstrate basic hypermedia software competence, by:
  - accessing hypermedia tools
  - applying hypermedia tools to produce a short presentation
  - using hypermedia tools to edit a short presentation
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF1080: PROGRAMMING 1

Level: Introductory

Theme: Programming

Prerequisite: None

Description: Students are introduced to computer programming languages and a structured programming environment, and they construct algorithms and code instructions to solve identified problems.

General Outcomes: *The student will:*

- demonstrate basic computer programming skills, by:
  - creating algorithms to solve problems
  - applying introductory, structured computer coding programming skills
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF1090: INFORMATION HIGHWAY 1

Level: Introductory

Theme: Dynamic Environment

Prerequisite: None

Description: Students develop personal use Internet skills for accessing and communicating data and information, with particular emphasis on the world wide web and email.

General Outcomes: *The student will:*

- demonstrate knowledge of the history of the Internet and of its basic functions
- demonstrate ability to communicate with others through the Internet
- demonstrate ability to access and report specific information from the world wide web
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE INF2010: WORKSTATION OPERATIONS

Level: Intermediate

Theme: System Operations

Prerequisite: None

Description: Students learn computer workstation operations, including computer architecture, peripherals, configurations, operating system environments and platforms, utility software, diagnostic and protection software, hard drive file updating and maintenance, support resource application and troubleshooting activities.

General Outcomes: *The student will:*

- use file management procedures efficiently
- install and use software to support the integrity of workstation hardware
- configure and maintain workstation hardware
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2030: KEYBOARDING 2

Level: Intermediate

Theme: Text/Data Input

Prerequisite: INF1020 Keyboarding 1

Description: Students enhance their personal use keyboarding competencies by increasing the rate of accurate touch keystroking of the alphabetic, numeric and selected punctuation keys.

General Outcomes: *The student will:*

- demonstrate keyboarding competence:
  - at 30 words per minute (wpm)
  - numeric entry at 100 keystrokes per minute (kpm)
  - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2040: KEYBOARDING 3

Level: Intermediate

Theme: Text/Data Input

Prerequisite: INF2030 Keyboarding 2

Description: Students enhance their keyboarding competencies, by increasing the rate of accurate touch keystroking of alphabetic, numeric and all punctuation keys to support personal use and limited, entry-level, workplace opportunities.

General Outcomes: *The student will:*

- demonstrate keyboarding competence:
  - text entry at 40 words per minute (wpm)
  - numeric entry at 120 keystrokes per minute (kpm)
  - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2050: WORD PROCESSING 2

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1020 Keyboarding 1
INF1030 Word Processing 1

Description: Students expand their skills in using word processing software commands and functions to produce mailable reports and correspondence, including letters, memorandums and tables, all from rough draft copy.

General Outcomes: *The student will:*

- demonstrate correct use of word processing software functions by producing mailable, well-formatted:
  - paginated reports, with headers, footers and title pages
  - letters with special notations in a designated letter style
  - memorandums
  - multicolumn tables with borders and footnotes
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2060: ELECTRONIC PUBLISHING 1

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1030 Word Processing 1

Description: Students develop skill, using electronic/desktop publishing software to create a variety of camera-ready documents.

General Outcomes: *The student will:*

- demonstrate basic electronic publishing software competence, by using page make-up tools and commands to produce camera-ready publications
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2070: DATABASE 2

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1050 Database 1

Description: Students use all the commands and functions of electronic database software that support effective and efficient database applications.

General Outcomes: *The student will:*

- demonstrate advanced level electronic database software competence, by:
  - creating hierarchical and relational databases
  - importing and manipulating data and preparing reports
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2080: SPREADSHEET 2

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1060 Spreadsheet 1

Description: Students demonstrate advanced level spreadsheet commands and functions to calculate and manipulate data and to prepare appropriate reports and printouts in text and graphic format.

General Outcomes: *The student will:*

- demonstrate advanced level electronic spreadsheet software competence, by:
  - creating spreadsheets, including importing data
  - manipulating data and preparing charts
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2090: CORRESPONDENCE

Level: Intermediate

Theme: Applied Processing

Prerequisite: INF2030 Keyboarding 2
INF2050 Word Processing 2

Description: Students expand their rate of document production as they prepare various forms of correspondence in mailable form, using word processing software.

General Outcomes: *The student will:*

- demonstrate efficient word processing of correspondence through the production of:
  - mailable correspondence in a variety of formats under time constraints
  - error-free, well-formatted correspondence
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2100: REPORTS

Level: Intermediate

Theme: Applied Processing

Prerequisite: INF2030 Keyboarding 2
INF2050 Word Processing 2

Description: Students expand their rate of production as they prepare various reports and manuscripts in mailable form.

General Outcomes: *The student will:*

- demonstrate efficient word processing of reports/manuscripts through the production of:
  - mailable reports in a variety of formats under time constraints
  - error-free, well-formatted reports
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2110: TABLES/FORMS

Level: Intermediate

Theme: Applied Processing

Prerequisite: INF2030 Keyboarding 2
INF2050 Word Processing 2

Description: Students expand their rate of document production as they prepare various tables/forms in mailable form.

General Outcomes: *The student will:*

- demonstrate competence in word processing of tables/forms, by:
  - producing mailable tables in a variety of formats under time constraints
  - designing a mailable form for a specific purpose and audience
  - editing and formatting tables and forms
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2120: SOFTWARE INTEGRATION 1

Level: Intermediate

Theme: Applied Processing

Prerequisite: INF1020 Keyboarding 1
INF1030 Word Processing 1
INF1050 Database 1
INF1060 Spreadsheet 1

Description: Students develop document production skills requiring the integration of data, text and graphics.

General Outcomes: *The student will:*

- demonstrate word processing and data management systems/graphics software integration competence, by:
  - producing mailable word processing documents that integrate spreadsheet, database and/or graphics in a variety of specific applications
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2130: MULTIMEDIA AUTHORING 1

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1070 Hypermedia Tools

Description: Students are introduced to multimedia software and provided with an opportunity to develop basic authoring competence, by accessing and integrating software resident text, video and audio clips.

General Outcomes: *The student will:*

- demonstrate multimedia authoring competence, by using software resident text, video and audio clips to:
  - use software-specific commands to access and manipulate text video and audio
  - develop a multimedia presentation
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2140: PROCESS CONTROL

Level: Intermediate

Theme: Dynamic Environment

Prerequisite: INF1070 Hypermedia Tools

Description: Students develop skills in robotics/simulation software control by creating, modifying and using programs that incorporate computer-controlled movements and events in robotics/simulation activities and applications.

General Outcomes: *The student will:*

- demonstrate basic electronic process control software competence, by:
  - explaining the theory and processes used to control a robot and/or other simulation
  - constructing a robot or cause a robot to function as intended through computer control
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2150: PROGRAMMING 2

Level: Intermediate

Theme: Programming

Prerequisite: INF1080 Programming 1

Description: Students increase their programming skills, by designing and generating programming code to handle decision making and repetitive processes.

General Outcomes: *The student will:*

- demonstrate basic computer programming skill, by:
  - creating algorithms to solve problems involving decision making and iteration
  - constructing computer programs involving decision making and iterative processes
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2160: PROGRAMMING 3

Level: Intermediate

Theme: Programming

Prerequisite: INF2150 Programming 2

Description: Students increase their programming skills, by using subprogram structures.

General Outcomes: *The student will:*

- restructure existing computer programs, by:
  - using subprogram structures
  - revising and constructing computer programs involving subprogram structures
- modify the algorithm to isolate the component operations/processes that were incorporated into the subprogram structure
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2170: PROGRAMMING 4

Level: Intermediate

Theme: Programming

Prerequisite: INF2160 Programming 3

Description: Students increase their programming skills, by developing and using derived data types.

General Outcomes: *The student will:*

- demonstrate evolving computer programming skill, by:
  - creating algorithms to solve problems supporting derived data types, such as arrays, character strings, records, sets
  - creating structured programs, using derived data types
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2180: PROGRAMMING 5

Level: Intermediate

Theme: Programming

Prerequisite: INF2170 Programming 4

Description: Students increase their programming skills, by developing and using recursive, sorting and merging algorithms.

General Outcomes: *The student will:*

- demonstrate evolving computer programming skills, by:
  - examining/creating different recursive, sorting, searching and merging algorithms
  - revising/creating structured programs containing operations on derived data types
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF2190: TELECOMMUNICATIONS 1

Level: Intermediate

Theme: System Operations

Prerequisite: None

Description: Students learn how to select and use various wired and wireless telecommunication systems. By using the Internet, they investigate how communication principles, bandwidth, telecommunication infrastructure and wave spectrum affects telecommunication systems.

General Outcomes: *The student will:*

- use selected communication systems, protocols and techniques to transfer messages and manage research
- describe the principles of wired and wireless communication systems and how telecommunication systems are affected by bandwidth and wave spectrum
- compare and contrast key elements of a telecommunication infrastructure
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF2200: INFORMATION HIGHWAY 2

Level: Intermediate

Theme: Dynamic Environment

Prerequisite: None

Description: Students learn how to produce a web page for the Internet.

General Outcomes: *The student will:*

- research characteristics of an effective web page
- design, create and present a web page
- enhance web page to improve features and functions
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE INF3010: HARDWARE/SOFTWARE ANALYSIS

Level: Advanced

Theme: System Operations

Prerequisite: None

Description: Students analyze, compare and evaluate hardware/software based on user requirements.

General Outcomes: *The student will:*

- analyze and compare computer hardware and software systems
- prepare and present a report recommending hardware and software configurations that meet specified criteria
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3020: LOCAL AREA NETWORKS

Level: Advanced

Theme: System Operations

Prerequisite: None

Description: Students learn about local area network (LAN) computer systems, including hardware and peripheral configurations, interface protocols and data transmission characteristics.

General Outcomes: *The student will:*

- demonstrate basic LAN competence, as:
  - a user/operator
  - a manager/technician
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3030: KEYBOARDING 4

Level: Advanced

Theme: Text/Data Input

Prerequisite: INF2040 Keyboarding 3

Description: Students develop their text and data keyboarding skills to entry-level occupational expectations.

General Outcomes: *The student will:*

- demonstrate proficient keyboarding competence:
  - text entry at 50 words per minute (wpm)
  - numeric entry at 150 keystrokes per minute (kpm)
  - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3040: KEYBOARDING 5

Level: Advanced

Theme: Text/Data Input

Prerequisite: INF3030 Keyboarding 4

Description: Students increase their occupational-level keyboarding competence of text, data and function/service keys, using straight copy and edited material.

General Outcomes: *The student will:*

- demonstrate proficient keyboarding competence:
  - text entry at 60 words per minute (wpm)
  - numeric entry at 180 keystrokes per minute (kpm)
  - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3050: KEYBOARDING 6

Level: Advanced

Theme: Text/Data Input

Prerequisite: INF3040 Keyboarding 5

Description: Students enhance their occupational-level keyboarding competence of all keystroke functions, using unedited, edited and straight copy material.

General Outcomes: *The student will:*

- demonstrate proficient keyboarding competence:
  - text entry at 70 words per minute (wpm)
  - numeric entry at 200 keystrokes per minute (kpm)
  - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3060: WORD PROCESSING 3

Level: Advanced

Theme: Productivity Software

Prerequisite: INF2030 Keyboarding 2
INF2050 Word Processing 2

Description: Students develop occupational-level competence in the use of word processing software commands and functions to produce mailable reports, correspondence and tables, including the importing and merging of text, data and graphics.

General Outcomes: *The student will:*

- demonstrate correct use of word processing software functions, by producing mailable, properly formatted copy of:
  - a multipage report with a title page, table of contents, bibliography and appendices
  - two-page letters in designated letter styles that incorporate special formats
  - memorandums
  - tables
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3070: ELECTRONIC PUBLISHING 2

Level: Advanced

Theme: Productivity Software

Prerequisite: INF2060 Electronic Publishing 1

Description: Students use the functions and commands of electronic/desktop publishing software as they integrate text composing, editing, typesetting, graphics generation and page layout functions to create customized, professional, quality documents.

General Outcomes: *The student will:*

- demonstrate electronic publishing software competence, by:
  - creating a customized document effectively incorporating text and graphics to communicate an idea or activity
  - applying software make-up tools and commands
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3080: INFORMATION MANAGEMENT TOOLS

Level: Advanced

Theme: Productivity Software

Prerequisite: None

Description: Students develop competence in using information management systems software, such as project management, schedules and planners for either personal or workplace applications.

General Outcomes: *The student will:*

- demonstrate the ability to use information management software, to:
  - plan projects, including setting goals, timelines and determining resource needs
  - monitor projects, including time and resource management
  - adjust project files, as appropriate
  - prepare project reports
- describe the features of the information management software used
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3090: SOFTWARE INTEGRATION 3

Level: Advanced

Theme: Applied Processing

Prerequisite: INF2120 Software Integration 1

Description: Students develop high production rates as they process documents from unedited and unformatted copy, using numerous functions/commands to create, revise, format and print a wide range of mailable copy.

General Outcomes: *The student will:*

- demonstrate competence in producing multipage documents and presentations that integrate word processing, spreadsheet, database and graphics files/documents, from:
  - unedited copy
  - unformatted copy
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3100: SPECIALIZATION 1

Level: Advanced

Theme: Applied Processing

Prerequisite: INF2030 Keyboarding 2
INF2050 Word Processing 2
INF2120 Software Integration 1

Description: Students specialize in document preparation, terminology application and associated office routine expectations in a specific focus area, such as a medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment.

General Outcomes: *The student will:*

- demonstrate basic competence in a specific focus area, by:
  - using appropriate terminology
  - preparing and producing documents
  - exhibiting professional attributes
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3110: SPECIALIZATION 2

Level: Advanced

Theme: Applied Processing

Prerequisite: INF3100 Specialization 1
INF3120 Software Integration 2

Description: Students develop workplace competence in a specific focus area, such as medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment, by creating and completing appropriate documents that employ specialized communication skills and conform to workplace expectations and time constraints.

General Outcomes: *The student will:*

- demonstrate entry-level workplace competence in a specific focus area, by:
  - using appropriate terminology
  - preparing and producing documents
  - exhibiting professional attributes
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3120: SOFTWARE INTEGRATION 2

Level: Advanced

Theme: Applied Processing

Prerequisite: INF2120 Software Integration 1

Description: Students expand their document production skills to workplace standards. Documents could require the importing and integration of word processing, spreadsheet, graphics and database files.

General Outcomes: *The student will:*

- demonstrate competence in producing documents that integrate word processing, spreadsheet, database and graphics files/documents, from:
  - unedited copy
  - unformatted copy
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3130: MULTIMEDIA AUTHORING 2

Level: Advanced

Theme: Productivity Software

Prerequisite: INF2130 Multimedia Authoring 1

Description: Students learn to use a multimedia file or multimedia authoring software based on digitized input of text, video and audio clips.

General Outcomes: *The student will:*

- demonstrate multimedia authoring software and digitized input competence, by:
  - capturing text/images, video and audio information from external sources, and inputting it on a computer
  - using captured text/images, video and audio to create a multimedia presentation
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3140: EXPERT SYSTEMS

Level: Advanced

Theme: Dynamic Environment

Prerequisite: INF3130 Multimedia Authoring 2

Description: Students acquire knowledge of expert systems, such as artificial intelligence and virtual reality. They gain competence, by developing or modifying programs that incorporate computer-controlled environments and multimedia interactive activities and applications.

General Outcomes: *The student will:*

- develop an information portfolio on expert systems and other advanced technologies
- program an application, using one of these systems and present the results
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3150: PROGRAMMING APPLICATION 1

Level: Advanced

Theme: Programming

Prerequisite: None

Description: Students create programs that use external files.

General Outcomes: *The student will:*

- create an algorithm to solve problems requiring an external data file
- develop programs that create, retrieve, append and modify text/nontext files
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3160: PROGRAMMING APPLICATION 2

Level: Advanced

Theme: Programming

Prerequisite: INF3150 Programming Application 1

Description: Students create a program, using a second programming language.

General Outcomes: *The student will:*

- employ existing algorithms to solve programming problems
- create programs to solve problems in a second programming language that include:
  - input/output
  - mathematical functions
  - looping and branching
  - subprogram structures
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3170: PROGRAMMING APPLICATION 3

Level: Advanced

Theme: Programming

Prerequisite: INF3160 Programming Application 2

Description: Students enhance a program, using a second programming language.

General Outcomes: *The student will:*

- create algorithms to solve programming problems
- create programs to solve problems, in a second programming language that include:
  - one- and two-dimensional arrays
  - character strings
  - sort, search and merge operations
  - external data files
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3180: TELECOMMUNICATIONS 2

Level: Advanced

Theme: System Operations

Prerequisite: INF2190 Telecommunications 1

Description: Students demonstrate knowledge of telecommunication systems by designing a new system. They use the Internet in researching and developing their design and for comparing and contrasting various telecommunication initiatives. Students analyze the effect this is having on the individual and society.

General Outcomes: *The student will:*

- use appropriate telecommunication systems, protocols and techniques to transfer messages and manage research
- describe how telecommunication systems are evolving, merging and connecting
- design a telecommunication solution that improves communication for an individual, business or society
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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COURSE INF3190: INFORMATION HIGHWAY 3

Level: Advanced

Theme: Dynamic Environment

Prerequisite: INF2200 Information Highway 2

Description: Students develop and maintain an Internet/intranet web site that makes use of advanced features.

General Outcomes: *The student will:*

- develop a multipage web site to be placed on the Internet or a local intranet
- present and describe to a group, the advanced features of a web site
- maintain and enhance a web site to improve features and functions
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

COURSE INF3200: INTERNET SERVICES

Level: Advanced

Theme: Dynamic Environment

Prerequisite: INF2200 Information Highway 2

Description: Students expand their skills from INF2200 Information Highway 2, by learning how to operate, maintain and build an Internet/intranet site that may include computer bulletin boards, forums, electronic mail, Internet list servers, and/or moderated newsgroups. Proper use of hardware, software and liaison with users and clients is emphasized.

General Outcomes: *The student will:*

- demonstrate competencies to access information from existing electronic messaging systems
- design and create an electronic messaging system
- maintain and enhance an electronic messaging system
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

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LEGAL STUDIES

B. STRAND RATIONALE AND PHILOSOPHY

The law is fundamental to society. Its many functions include the settlement of disputes, regulation of private arrangements, and provision of guidelines for conduct within the community.

Legal Studies, a strand in Career and Technology Studies, presents students with basic and practical information about the law. The first goal of this strand is for students to develop the knowledge, skills and attitudes required to respond appropriately to the affect of law on their daily lives. A second goal is to equip students with the capabilities and confidence required to participate in the changing of laws. A third goal is to create an awareness of the many law-related occupational opportunities that are available.

Within the philosophy of Career and Technology Studies, *students* in Legal Studies *will*:

- develop skills in decision making, problem solving, communicating and critical thinking
- develop knowledge, skills and positive attitudes about the law
- identify the rights granted and the responsibilities imposed by the law
- engage in the critical analysis of legal issues
- develop an appreciation of the individual's ability to influence the law
- demonstrate a tolerance for opinions held by others
- demonstrate the ability to work cooperatively with others
- develop the ability to recognize, avoid and resolve problems with legal implications
- develop an awareness of legal issues in other curricular areas
- investigate career options related to the law.

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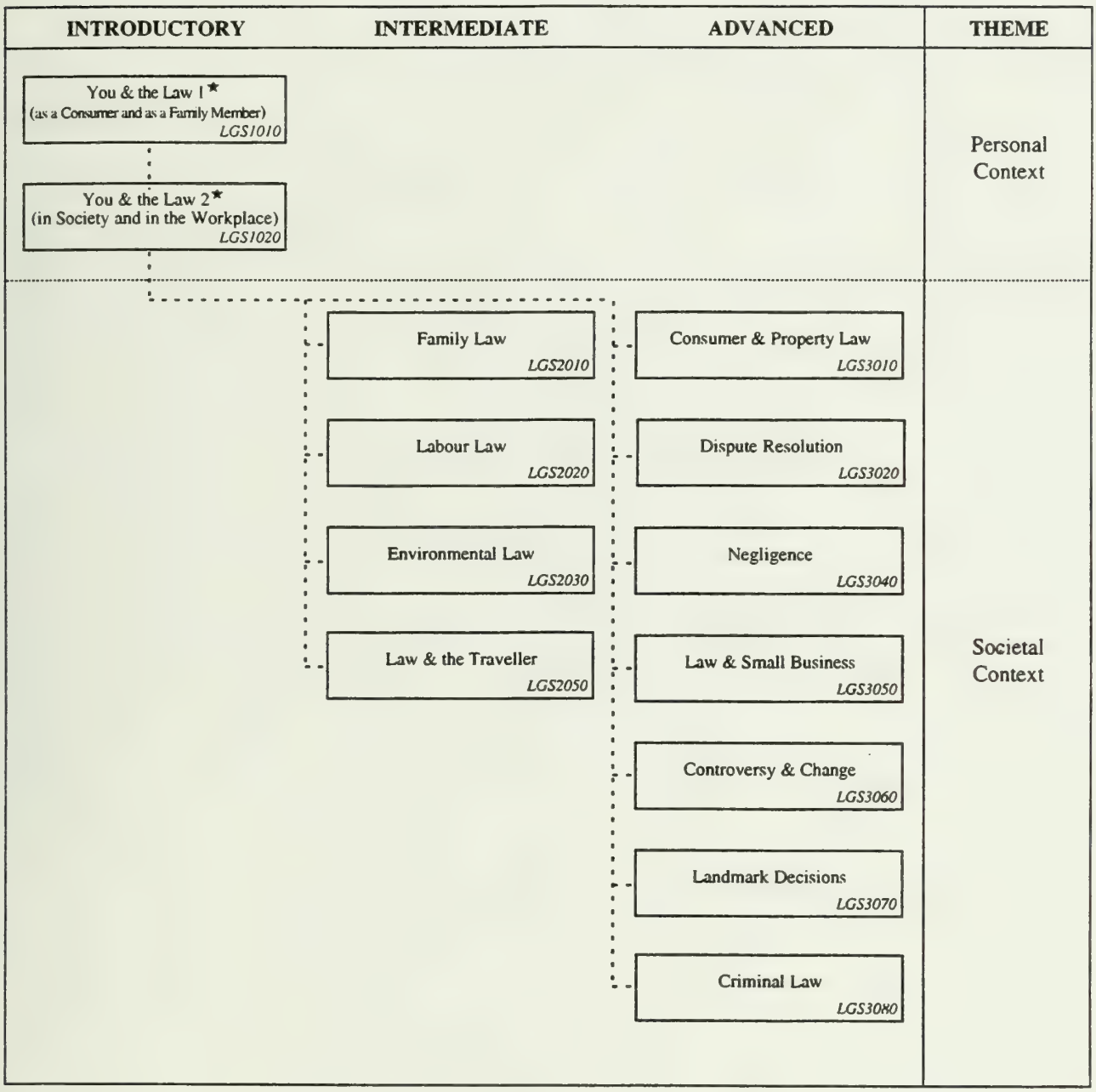
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

★ Module provides a strong foundation for further learning in this strand.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE LGS1010: YOU & THE LAW 1 (AS A CONSUMER AND AS A FAMILY MEMBER)

Level: Introductory

Theme: Personal Context

Prerequisite: None

Module Description: Students learn about laws affecting consumers and family members through the use of realistic scenarios and case studies.

Module Learner Expectations: *The student will:*

- investigate laws related to the consumer and to the family
- examine the foundations for these laws
- demonstrate basic competencies.

MODULE LGS1020: YOU & THE LAW 2 (IN SOCIETY AND IN THE WORKPLACE)

Level: Introductory

Theme: Personal Context

Prerequisite: None

Module Description: Students identify laws that affect people in the workplace, and examine elements of criminal and civil laws that the average citizen should know about.

Module Learner Expectations: *The student will:*

- identify laws related to the workplace
- examine the rights and responsibilities of the individual in society
- examine the foundations for these laws
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE LGS2010: FAMILY LAW

Level: Intermediate

Theme: Societal Context

Prerequisite: None

Module Description: Students examine a broad range of legal issues relating to personal relationships.

Module Learner Expectations: *The student will:*

- investigate the laws regarding different types of personal relationships
- demonstrate basic competencies.

MODULE LGS2020: LABOUR LAW

Level: Intermediate

Theme: Societal Context

Prerequisite: None

Module Description: Students learn about unions and collective bargaining, contracts of employment, employment insurance, workers' compensation and women in the workplace. Challenging issues and law-related careers are also considered.

Module Learner Expectations: *The student will:*

- identify and explain present labour legislation
- propose changes in labour legislation
- demonstrate basic competencies.

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MODULE LGS2030: ENVIRONMENTAL LAW

Level: Intermediate

Theme: Societal Context

Prerequisite: None

Module Description: Students identify laws related to the environment and describe how new environmental information affects the law. Students also examine, through case studies, the role of groups and individuals in bringing about changes in environmental law.

Module Learner Expectations: *The student will:*

- review present legislation on the environment
- outline procedures for a formal hearing
- propose new legislation or changes to existing legislation
- demonstrate basic competencies.

MODULE LGS2050: LAW & THE TRAVELLER

Level: Intermediate

Theme: Societal Context

Prerequisite: None

Module Description: Students identify and describe the issues and legal considerations that may arise when individuals travel domestically and internationally.

Module Learner Expectations: *The student will:*

- identify and describe the legal considerations when individuals travel domestically and internationally
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE LGS3010: CONSUMER & PROPERTY LAW

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students identify laws relating to renting personal and real property, purchasing a home, making investments and building or renovating a home. Students describe methods for protecting the consumer, challenging issues and law-related careers.

Module Learner Expectations: *The student will:*

- identify and describe laws governing complex consumer transactions
- demonstrate basic competencies.

MODULE LGS3020: DISPUTE RESOLUTION

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students demonstrate and apply such methods as negotiation, mediation, arbitration and adjudication used to resolve disputes. Students also identify career opportunities and challenging issues related to the dispute resolution methods.

Module Learner Expectations: *The student will:*

- differentiate between traditional and alternative dispute resolution methods
- demonstrate an understanding of the progression of dispute resolution options
- demonstrate basic competencies.

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MODULE LGS3040: NEGLIGENCE

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students use case studies and scenarios to explore the legal meaning of negligence and legal action relating to negligence.

Module Learner Expectations: *The student will:*

- investigate the area of tort law called negligence
- demonstrate basic competencies.

MODULE LGS3050: LAW & SMALL BUSINESS

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students learn about laws relating to starting a business, running a business and ending a business. Students also explore challenging issues that affect small business and law-related careers.

Module Learner Expectations: *The student will:*

- examine the legal considerations involved in operating a small business
- demonstrate basic competencies.

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MODULE LGS3060: CONTROVERSY & CHANGE

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students explore how controversial issues evoke responses that may bring about changes in the law, and describe a wide variety of strategies that may be used for changing the law.

Module Learner Expectations: *The student will:*

- describe how different views of people are expressed in controversial issues which may have legal implications
- describe the various methods used to bring about changes in the law
- demonstrate basic competencies.

MODULE LGS3070: LANDMARK DECISIONS

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students analyze, in detail, "landmark decisions" and their subsequent influence on the political, social and economic environment.

Module Learner Expectations: *The student will:*

- identify "landmark decisions" and analyze their subsequent effects
- demonstrate basic competencies.

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MODULE LGS3080: CRIMINAL LAW

Level: Advanced

Theme: Societal Context

Prerequisite: None

Module Description: Students examine the criminal justice system, including the criminal process and the roles and responsibilities of the participants. Students also explore challenging issues and law-related careers.

Module Learner Expectations: *The student will:*

- examine the Canadian criminal justice system
- demonstrate basic competencies.

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LOGISTICS

B. STRAND RATIONALE AND PHILOSOPHY

Logistics involves the movement of goods from producer to consumer. It is the integrating process that includes designing, controlling, implementing, managing and operating the transportation of goods, including information.

Logistics systems occupy unique places in our economy. Although used by all, the systems are often ignored or taken for granted by users. However, logistics provide solutions for the often used but highly oversimplified statement: *"Nobody is where they want to be; nothing is where it is needed."*

Logistics systems interact in both government and private sectors. In the process of moving goods by land (on, above and below), air and water and in space, it affects all facets of daily living—the environment, where people live, how and where they work, and the availability and accessibility of goods and travel for personal, commercial and industrial use.

The logistics sector is both diverse and complex, and it is an essential force in the social, cultural and economic development of Canada. This sector links Canadians to other nations and peoples, and with sophisticated systems (information management, personnel management, operating and marketing), providing many challenging and rewarding career opportunities for suitably qualified people.

Logistics, a strand in Career and Technology Studies, provides opportunities for students to increase their knowledge and appreciation about the scope and roles of each subsector of logistics, the importance of these subsectors to daily living, business and commerce, and the affect of different modes of transportation on natural environments. Logistics also enables students to prepare for their roles as users of logistics systems and services and to explore and prepare for related careers.

Logistics encourages the use of the student-centred process approach, which combines the development of thinking processes and practical skills in realistic learning situations. Throughout the program students are encouraged to solve problems, make decisions and develop the abilities and flexibility to adapt quickly to new situations, including changes in careers.

The emerging workplace requires that new entrants be lifelong learners who are able to access information and use technology to help solve problems and make decisions. Within the philosophy of Career and Technology Studies, *students* in Logistics *will*:

- develop daily living and career competencies
- become responsible citizens

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- appreciate and understand the role and impact of logistics in the home, school and workplace

- identify and access career opportunities in logistics and appreciate the preparation needed to enter and progress in related fields

- develop confidence and flexibility as they assume adult roles and responsibilities and move into the workplace and/or further education and training programs

- study, practise and achieve success in life-skills and career-related competencies

- identify, practise and maintain high standards of safety and ethical conduct in logistics-related activities.

In order to achieve these competencies, *the student will*:

- apply knowledge, skills and attitudes from other disciplines in contexts related to self, family, workplace

- develop basic and career-specific skills that have applications for personal use and specific applications in the world of work

- develop positive attitudes toward work through participation in realistic learning activities in varied learning environments

- develop a more positive self-concept for assuming increasingly complex roles and responsibilities

- develop a greater awareness of the role of logistics-related businesses and industries in society, and the potential for enterprise and innovation within the logistics industry.

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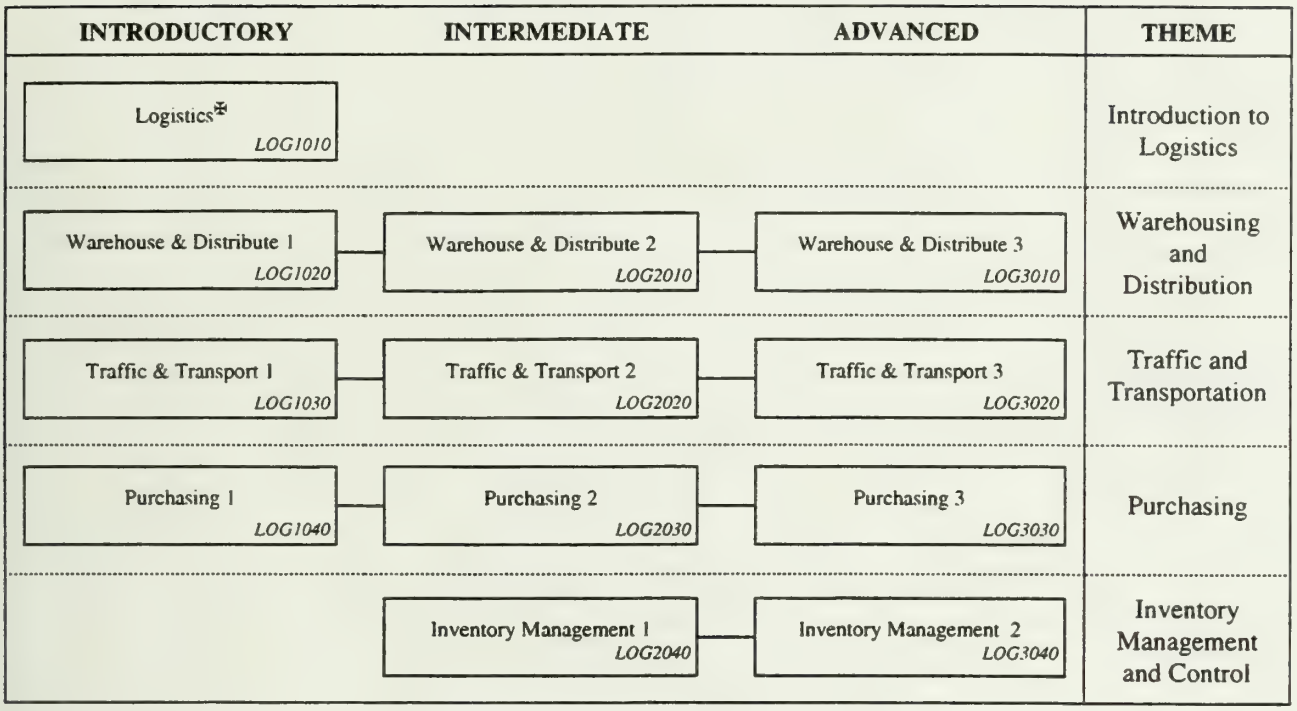
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

✠ Prerequisite to all modules in this strand.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE LOG1010: LOGISTICS

Level: Introductory

Theme: Introduction to Logistics

Prerequisite: None

Module Description: Students identify logistics as a sector in Canada's economy, by describing related subsectors, users and providers of logistics services. Students also identify current and emerging career paths in logistics.

Module Learner Expectations: *The student will:*

- explain the role and significance of logistics in everyday living
- identify and describe:
  - subsectors of logistics
  - relationships among logistics subsectors
- explain the role of logistics in the production of a simple item to its availability and use by a satisfied customer
- identify and describe current and emerging career paths and opportunities within the logistics sector
- demonstrate basic competencies.

MODULE LOG1020: WAREHOUSE & DISTRIBUTE 1

Level: Introductory

Theme: Warehousing and Distribution

Prerequisite: LOG1010 Logistics

Module Description: Students explore warehousing and distribution systems as subsectors of logistics and participate in warehousing, materials handling systems, stock placement and documentation activities.

Module Learner Expectations: *The student will:*

- identify and describe the roles of warehousing and distribution in logistics
- identify, describe and demonstrate materials handling:
  - systems/processes
  - stock placement
- read, interpret and complete appropriate documentation
- demonstrate basic competencies.

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MODULE LOG1030: TRAFFIC & TRANSPORT 1

Level: Introductory

Theme: Traffic and Transportation

Prerequisite: LOG1010 Logistics

Module Description: Students distinguish among modes, vehicles and vessels involved in transportation, identify the advantages and disadvantages of single mode and intermodal usages, and demonstrate basic skills relating to map reading, technology, handling equipment and handling dangerous goods.

Module Learner Expectations: *The student will:*

- identify modes of transportation and vehicles and vessels used in each mode
- differentiate and explain the advantages and disadvantages of:
  - single mode usages
  - intermodal usages
- demonstrate:
  - map-reading skills
  - using technology
  - handling dangerous goods
  - handling equipment
- demonstrate basic competencies.

MODULE LOG1040: PURCHASING 1

Level: Introductory

Theme: Purchasing

Prerequisite: LOG1010 Logistics

Module Description: Students identify the role of purchasing, distinguish between public and private purchasing activities, perform expediting activities, and provide service to internal and external customers.

Module Learner Expectations: *The student will:*

- describe the role of purchasing and work performed by purchasers in logistics
- distinguish between public and private purchasing activities
- differentiate between internal and external customers
- demonstrate basic competencies in:
  - purchasing
  - expediting
  - data handling
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE LOG2010: WAREHOUSE & DISTRIBUTE 2

Level: Intermediate

Theme: Warehousing and Distribution

Prerequisite: LOG1020 Warehouse & Distribute 1

Module Description: Students examine types of warehousing and develop basic skills in packaging, packing, documentation and materials handling. Students also explore bonding principles and practices and career opportunities within the warehousing and distribution sector.

Module Learner Expectations: *The student will:*

- demonstrate an understanding of:
  - warehousing types, purposes, functions and operations of warehouses, locations, organization, processes and stock locator techniques
- identify and explain bonding principles and practices
- demonstrate basic skills in shipment preparation, including:
  - packaging
  - packing
  - document selection and completion
- demonstrate safety, competency and confidence in:
  - handling materials
  - operating equipment and aids
- demonstrate basic competencies.

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MODULE LOG2020: TRAFFIC & TRANSPORT 2

Level: Intermediate

Theme: Traffic and Transportation

Prerequisite: LOG1030 Traffic & Transport 1

Module Description: Students develop basic skills in tracking, route planning, scheduling, load planning and other competencies related to handling outgoing shipments, including documentation, customs (import and export), weather and climate conditions, and strategies for preventive maintenance in traffic and transportation.

Module Learner Expectations: *The student will:*

- demonstrate basic skills in:
  - tracking, route planning and scheduling
  - completing and maintaining documentation
  - load planning, measuring and calculating
  - handling equipment
  - preparing outgoing shipments
- identify and describe the role of:
  - customs, import and export
  - safety standards
  - weather and climate conditions
  - preventive maintenance
- demonstrate basic competencies.

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MODULE LOG2030: PURCHASING 2

Level: Intermediate

Theme: Purchasing

Prerequisite: LOG1040 Purchasing 1

Module Description: Students develop an understanding of the principles of locus of control, economies of scale, risk management, surface and hidden costs, tendering and procurement. Students also perform purchasing activities and address related factors, including budgets and inflation, within an organization's decision-making structure.

Module Learner Expectations: *The student will:*

- demonstrate functional knowledge of key principles of:
  - lines of authority
  - economy of scale
  - risk management
  - budgeting
- distinguish between surface and hidden costs
- demonstrate basic abilities relating to:
  - purchasing
  - decision making
  - tendering
  - procurement
- demonstrate basic competencies.

MODULE LOG2040: INVENTORY MANAGEMENT 1

Level: Intermediate

Theme: Inventory Management and Control

Prerequisite: LOG1010 Logistics

Module Description: Students identify the role of inventory management and control, and participate in and demonstrate basic abilities to manage and control inventory.

Module Learner Expectations: *The student will:*

- describe the roles of inventory management and control in logistics
- describe and distinguish among methods to classify and categorize materials
- identify and describe the purpose of key principles of inventory management and control
- use basic technology, and spreadsheets and databases to input, read and interpret inventory management and control
- describe and demonstrate product movement and replenishment strategies
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE LOG3010: WAREHOUSE & DISTRIBUTE 3

Level: Advanced

Theme: Warehousing and Distribution

Prerequisite: LOG2010 Warehouse & Distribute 2

Module Description: Students develop an understanding and competencies relating to stock movement and placement procedures, product tracking and the use of automated warehouse systems. Students also develop competencies in labelling, containerizing and palletizing items.

Module Learner Expectations: *The student will:*

- demonstrate an understanding of:
  - stock movement and placement procedures and practices
  - product tracking
  - equipment operations standards
  - automated warehouse systems
- demonstrate competencies in:
  - labelling
  - containerization
  - palletizing
- demonstrate basic competencies.

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MODULE LOG3020: TRAFFIC & TRANSPORT 3

Level: Advanced

Theme: Traffic and Transportation

Prerequisite: LOG2020 Traffic & Transport 2

Module Description: Students explore transport regulations and licencing, and develop competency in planning a route and developing contingency plans.

Module Learner Expectations: *The student will:*

- demonstrate competency in planning a route and developing contingency plans
- demonstrate a basic understanding of:
  - equipment handling certification requirements
  - vendor and carrier licencing and training for dangerous goods
  - rates and tariffs
  - liabilities
- demonstrate basic competencies.

MODULE LOG3030: PURCHASING 3

Level: Advanced

Theme: Purchasing

Prerequisite: LOG2030 Purchasing 2

Module Description: Students develop knowledge about contract and business law, supplier quality assurance and performance management. Students also develop negotiation skills and an appreciation for the importance of professional ethics.

Module Learner Expectations: *The student will:*

- identify and explain key principles of:
  - contract and business law
  - supplier quality assurance
  - performance management
- demonstrate basic understanding and skills in professional ethics
- demonstrate negotiation skills
- demonstrate basic competencies.

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MODULE LOG3040: INVENTORY MANAGEMENT 2

Level: Advanced

Theme: Inventory Management and Control

Prerequisite: LOG2040 Inventory Management 1

Module Description: Students demonstrate competencies relating to product movement and replenishment strategies, budgeting, internal controls and asset recovery.

Module Learner Expectations: *The student will:*

- identify, describe and apply key principles of:
  - product movement and replenishment strategies
  - budget procedures
  - internal controls
  - asset recovery
- use basic technology to affect inventory management and control
- demonstrate basic competencies.

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MANAGEMENT AND MARKETING

B. STRAND RATIONALE AND PHILOSOPHY

In our highly competitive, rapidly changing society, management and marketing are generic skills. No matter what you do, how you manage yourself or how you use the resources available to you; you market yourself, your services or the products you make.

Management and Marketing, a strand in Career and Technology Studies, is designed to increase students' abilities to apply effective and efficient systems and strategies of management and marketing within personal, family, workplace, community and global contexts. The management aspect of this strand identifies effective procedures for organizing resources and working with people; whereas, marketing is concerned with pricing, promotion and distribution of ideas, products and services to satisfy consumer needs and wants.

Marketing in this strand takes a retail perspective. Linking student experiences as consumers to marketing in the retail marketplace is a central focus in the marketing systems and strategies theme. Through consumer experiences and other business-like activities, students will be asked to focus on marketing through the eyes of a retail worker, manager or owner. Students will learn retail merchandising strategies that help people engaged in marketing meet the challenge of ensuring that the right goods or services are in the right place, at the right time, in the right quantity, at the right price and offered to the right people.

Management in this strand emphasizes business and information management to generate profit within a competitive environment. Knowledge, skills and attitudes will be developed to help students identify and analyze strategies to succeed when working within continuously changing systems. Students will gain experience and confidence through a wide range of practical experiences as they plan, organize, take action, lead, work cooperatively, monitor progress and communicate. Their goal will be to ensure quality and professional service.

This strand provides an opportunity for students to explore the very complex and continuously expanding study of management and marketing systems and strategies. The intent is to help students develop enough background and skills so that, as entry-level employees, they can make an effective contribution right away. Many of the systems and strategies introduced here lead to further learning and specialization, both through workplace experiences and/or post-secondary study.

Management and Marketing builds on the Enterprise and Innovation strand competencies. Learning experiences will help students relate

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what they already know about how organizations run, how goods are sold and how the economy works. Management and Marketing can help students become aware of and assess a wide range of career opportunities—opportunities in small, medium and large public or private organizations as management and marketing specialists, in related support positions, or as a complement to the technical skills required by people who own and manage their own businesses.

Within the philosophy of Career and Technology Studies, *students* in Management and Marketing *will*:

- identify, analyze, apply and improve systems and strategies related to business and information management and marketing that can be applied personally, throughout CTS and in other study areas

- develop abilities in planning, organizing, leading, monitoring and communicating

- research, analyze, interpret and evaluate information needed in business management, marketing and information management systems and strategies

- develop and apply creative problem-solving and effective decision-making skills within the contexts of business management, marketing and information management systems and strategies

- analyze the role of the individual, family and community as they relate to management and marketing within the Canadian and global economy

- identify areas of interest and talent and relate these to career opportunities in business management and marketing

- demonstrate effort to develop basic competencies.

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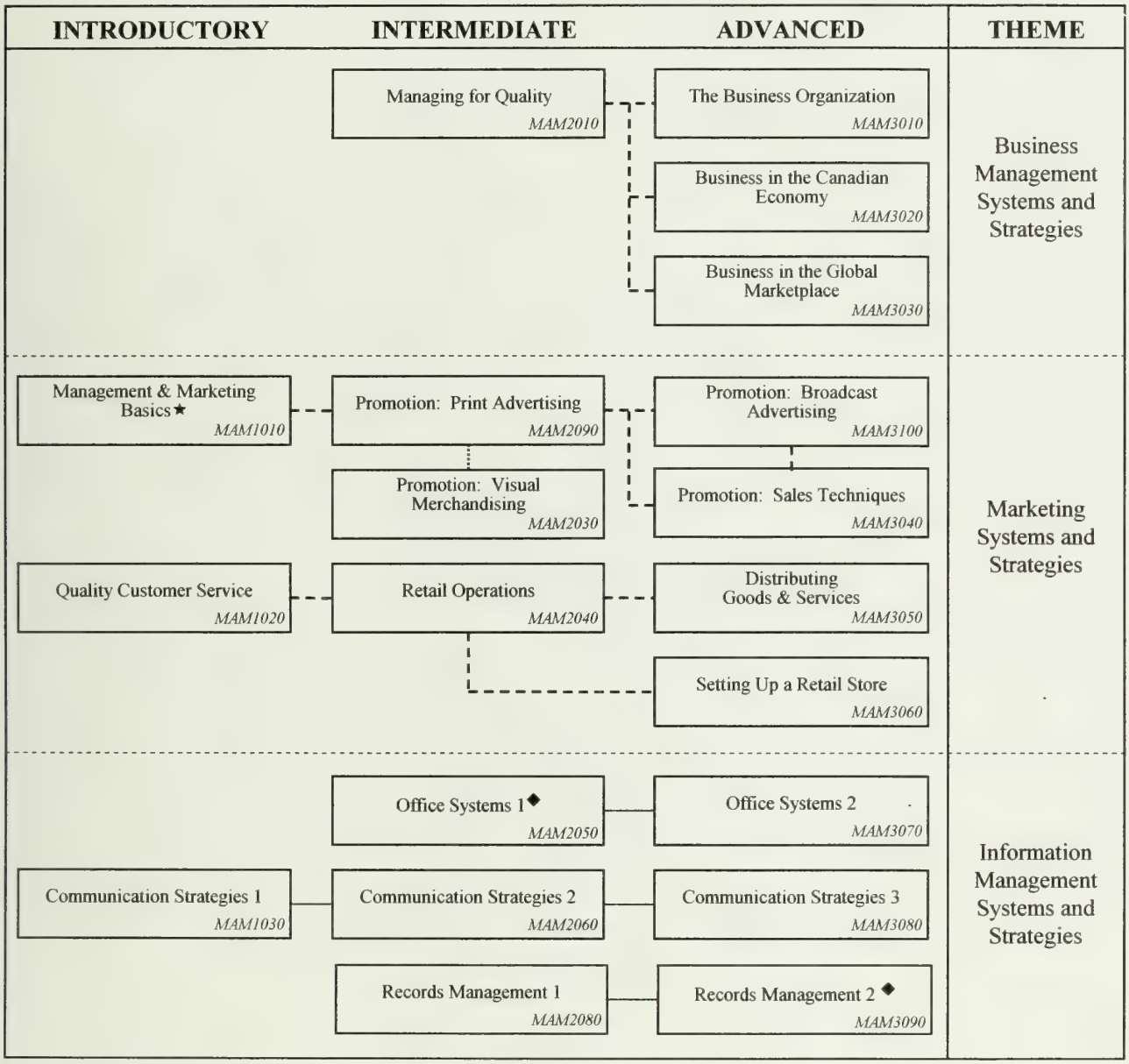
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

◆ Refer to specific courses for additional prerequisites.

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GENERAL OUTCOMES: INTRODUCTORY LEVEL

COURSE MAM1010: MANAGEMENT & MARKETING BASICS

Level: Introductory

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students identify basic management and marketing concepts, and describe retail merchandising strategies of value to the retail employee, manager or owner.

General Outcomes: *The student will:*

- relate management concepts to:
  - his or her personal life
  - organizations he or she is involved in
  - different types of businesses (large and small)
- describe the characteristics of marketing and decisions made within the marketing mix
- describe the role of retailing:
  - in Canadian history
  - in Canada today
  - in Canada in the future
- identify and analyze retail merchandising strategies used in the marketplace today
- identify management and marketing careers of personal interest
- demonstrate basic competencies.

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COURSE MAM1020: QUALITY CUSTOMER SERVICE

Level: Introductory

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students identify and describe the target customer and the selling floor, including sales and nonsales activities.

General Outcomes: *The student will:*

- identify and describe:
  - how retailers target their markets
  - a variety of consumer behaviours
- demonstrate effective retail sales/service techniques as:
  - a retail sales clerk and/or service provider
  - cashier
- identify personal interests and opportunities as they relate to careers in retailing
- demonstrate basic competencies.

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COURSE MAM1030: COMMUNICATION STRATEGIES 1

Level: Introductory

Theme: Information Management Systems and Strategies

Prerequisite: None

Description: Students improve oral and written business communication skills necessary for efficient and effective management of information. The focus is on business writing strategies and composing at the computer when preparing memorandums, e-mail messages and business letters.

General Outcomes: *The student will:*

- demonstrate use of the writing process when composing correspondence, including:
  - prewriting
  - writing
  - revising
  - proofreading
- demonstrate appropriate ways to deal with callers:
  - face to face
  - on the telephone
- identify personal interests and opportunities as they relate to applying effective communication strategies in career areas
- demonstrate basic competencies.

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GENERAL OUTCOMES: INTERMEDIATE LEVEL

COURSE MAM2010: MANAGING FOR QUALITY

Level: Intermediate

Theme: Business Management Systems and Strategies

Prerequisite: None

Description: Students demonstrate basic managerial skills, by assuming roles and responsibilities of management to coordinate available resources to achieve quality results.

General Outcomes: *The student will:*

- identify and outline quality management systems and strategies used to improve quality
- analyze the roles of managers and strategies used by managers to improve quality
- apply management systems and strategies
- identify, through research, a current management system, and describe its effect on the organization
- identify personal interests and opportunities as they relate to careers in management
- demonstrate basic competencies.

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COURSE MAM2030: PROMOTION: VISUAL MERCHANDISING

Level: Intermediate

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students identify different types of visual merchandising, and describe how to construct attention-getting displays and how to evaluate visual merchandising.

General Outcomes: *The student will:*

- identify and explain basic visual merchandising concepts
- create a collection of visual merchandising ideas for a calendar year
- design and construct a visual merchandising presentation
- evaluate various forms of visual merchandising
- identify personal interests and opportunities as they relate to careers in visual merchandising
- demonstrate basic competencies.

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COURSE MAM2040: RETAIL OPERATIONS

Level: Intermediate

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students identify retail operations that are typically performed off the selling floor, away from customers.

General Outcomes: *The student will:*

- identify and report on a particular retailer's policies and practices
- act as a buyer when purchasing goods and demonstrate ordering procedures
- develop a checking, marking and stocking system to use after goods have been received
- verify and process invoices for payment of goods and services received
- describe pricing strategies used by retailers
- demonstrate effective use of systems and strategies to control goods
- identify personal interests related to careers in retail operations, including buying, receiving, stocking, storing and payment of merchandise
- demonstrate basic competencies.

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COURSE MAM2050: OFFICE SYSTEMS 1

Level: Intermediate

Theme: Information Management Systems and Strategies

Prerequisite: INF1030 Word Processing 1 [Information Processing Strand]

Description: Students identify and describe strategies and procedures in the office environment and managing processes and protocols related to electronic equipment, written communication transmittal and business travelling arrangements.

General Outcomes: *The student will:*

- conduct an analysis of a selected office environment
- demonstrate use of electronic equipment within office environment(s)
- develop procedures for managing written communication transmittals
- make travel arrangements for a business trip
- identify personal interests related to office careers
- demonstrate basic competencies.

COURSE MAM2060: COMMUNICATION STRATEGIES 2

Level: Intermediate

Theme: Information Management Systems and Strategies

Prerequisite: MAM1030 Communication Strategies 1

Description: Students improve their basic oral and written communication strategies necessary to efficient and effective management of information. The focus is on technical writing strategies and composing at the computer when preparing informal business reports and proposals.

General Outcomes: *The student will:*

- critique informal business reports
- demonstrate use of the writing process; e.g., prewriting, writing, revising, proofreading, when composing business reports or proposals
- deliver an oral report, using effective communication strategies
- demonstrate basic competencies.

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COURSE MAM2080: RECORDS MANAGEMENT 1

Level: Intermediate

Theme: Information Management Systems and Strategies

Prerequisite: None

Description: Students demonstrate basic records management skills for a manual records system, emphasizing alphabetic coding procedures.

General Outcomes: *The student will:*

- identify and describe basic filing/records management concepts
- demonstrate ability to organize and use an alphabetic filing/records management system
- identify personal interests and opportunities as they relate to careers in records management
- demonstrate basic competencies.

COURSE MAM2090: PROMOTION: PRINT ADVERTISING

Level: Intermediate

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students are introduced to communication channels, delivery strategies and advertising media that can be used to inform potential customers about products and services available in the marketplace.

General Outcomes: *The student will:*

- describe principles involved in the advertising process and apply these principles to print media
- evaluate print advertisements
- design and create an effective print advertisement
- identify personal interests and opportunities as they relate to careers in advertising
- demonstrate basic competencies.

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GENERAL OUTCOMES: ADVANCED LEVEL

COURSE MAM3010: THE BUSINESS ORGANIZATION

Level: Advanced

Theme: Business Management Systems and Strategies

Prerequisite: None

Description: Students identify and describe organizational structures, management theories and organizations as working units. Students also explain their beliefs of what successful organizations might look like in the future.

General Outcomes: *The student will:*

- identify and assess local examples of different types of organizational structures
- analyze the different management theories and forecast future trends
- examine the purpose of the following areas in a business organization, and the roles and responsibilities for managers in each of these areas:
  - research and development
  - production
  - finance
  - marketing
  - purchasing
  - administration
  - human resources
- identify why businesses succeed/fail and how organizations measure their success/failure
- evaluate a current challenge facing managers in today's society
- identify personal interests and opportunities as they relate to careers in large organizations
- demonstrate basic competencies.

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COURSE MAM3020: BUSINESS IN THE CANADIAN ECONOMY

Level: Advanced

Theme: Business Management Systems and Strategies

Prerequisite: None

Description: Students expand and relate their knowledge of economics to how business decisions are made within the community, the province, nationally and internationally.

General Outcomes: *The student will:*

- identify basic economic terms and concepts
- demonstrate knowledge of the Canadian economy
- identify, describe and evaluate an economic issue challenging Canadian businesses
- demonstrate basic competencies.

COURSE MAM3030: BUSINESS IN THE GLOBAL MARKETPLACE

Level: Advanced

Theme: Business Management Systems and Strategies

Prerequisite: None

Description: Students identify the opportunities and challenges that confront business people in establishing a global business operation.

General Outcomes: *The student will:*

- compare existing international business ventures within developing and developed nations
- identify and examine existing legislation that affects global ventures
- analyze existing global ventures
- identify and investigate global entrepreneurial opportunities within a developing and a developed nation
- demonstrate basic competencies.

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COURSE MAM3040: PROMOTION: SALES TECHNIQUES

Level: Advanced

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students learn techniques for successful selling.

General Outcomes: *The student will:*

- critique salespersons and customers during the selling process
- develop and demonstrate proper sales techniques
- identify personal interests and opportunities as they relate to careers in sales
- demonstrate basic competencies.

COURSE MAM3050: DISTRIBUTING GOODS & SERVICES

Level: Advanced

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students explore the channels of distribution and modes of transportation used to direct goods from the producer to the consumer.

General Outcomes: *The student will:*

- identify and compare different channels of distribution and modes of transportation
- identify and describe different types of retailers present in the community
- identify and present the channels of distribution and modes of transportation used for a manufactured product
- identify personal interests and opportunities as they relate to careers in distribution
- demonstrate basic competencies.

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COURSE MAM3060: SETTING UP A RETAIL STORE

Level: Advanced

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students develop retail store images, examine potential locations and design store layouts. Students should be given hands-on experience by researching a location for an actual retailing opportunity and design a layout for this retail store. This course focuses on students owning a retail business and learning the necessary steps for success.

General Outcomes: *The student will:*

- create an image for a retail business
- analyze and justify a location and site
- design an effective floor plan, using the principles of store design and layout
- identify and select vendors for the purchase of fixtures and equipment
- prepare a maintenance schedule
- demonstrate basic competencies.

COURSE MAM3070: OFFICE SYSTEMS 2

Level: Advanced

Theme: Information Management Systems and Strategies

Prerequisite: MAM2050 Office Systems 1

Description: Students demonstrate effective office environment strategies and processes, use electronic office equipment, and manage processes related to electronic communications and business meetings.

General Outcomes: *The student will:*

- evaluate and make recommendations for improving the quality of the office environment
- demonstrate independent use of office strategies and procedures, and electronic office equipment within office environments
- describe procedures for managing electronic communications
- demonstrate ability to plan and run a business meeting
- demonstrate basic competencies.

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COURSE MAM3080: COMMUNICATION STRATEGIES 3

Level: Advanced

Theme: Information Management Systems and Strategies

Prerequisite: MAM2060 Communication Strategies 2

Description: Students continue to improve basic oral and written communication strategies necessary to efficient and effective management of information. Focus is on technical writing strategies and composing at the computer when preparing formal business reports and proposals.

General Outcomes: *The student will:*

- critique formal technical reports
- prepare a formal technical report that is clear, concise and meets the needs of the report user
- deliver an oral, formal technical report supported by visual aids
- demonstrate basic competencies.

COURSE MAM3090: RECORDS MANAGEMENT 2

Level: Advanced

Theme: Information Management Systems and Strategies

Prerequisite: MAM2080 Records Management 1
INF1050 Database 1 [Information Processing Strand]

Description: Students describe the advantages of an automated records system. Numeric, subject and geographic coding are emphasized.

General Outcomes: *The student will:*

- identify and describe basic electronic records management concepts
- demonstrate ability to plan, create and use two of the following electronic records management systems:
  - numeric
  - subject
  - geographic
- demonstrate basic competencies.

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COURSE MAM3100: PROMOTION: BROADCAST ADVERTISING

Level: Advanced

Theme: Marketing Systems and Strategies

Prerequisite: None

Description: Students are introduced to broadcast communication channels, delivery strategies and advertising media that can be used to inform potential customers about products and services available in the marketplace.

General Outcomes: *The student will:*

- investigate and report on basic broadcast media types and concepts
- evaluate advertisements for radio and television mediums
- design and create an effective promotional advertisement for each of the following media:
  - television
  - radio
- demonstrate basic competencies.

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MECHANICS

B. STRAND RATIONALE AND PHILOSOPHY

The movement of people and goods from one place to another has always been important to human existence. Over the last century, significant advances in modes of transportation have dramatically altered the way we live and make our living. However, the quick and convenient movement of people and goods is not risk free. The ever-increasing use of motor vehicles throughout the world and their reliance on fossil fuels has created major personal safety and environmental concerns. Because the transportation industry is large and diverse, there are many opportunities for rewarding careers, whether it is to design and build safer and more efficient vehicles or to service the ones that are already in use.

In Mechanics, a strand of Career and Technology Studies, students, through hands-on experiences, have the opportunity to increase their knowledge and skills related to the design and maintenance of transportation vehicles, and the impact they have on the environment and on their economic and social well-being. Whether a student plans to prepare for a work-related role in the industry or simply wants to be an informed owner/operator of a vehicle, the Mechanics strand should be viewed as an educational opportunity for all secondary students.

More specifically, the Mechanics strand will provide students with a broad base of experience and knowledge of systems related to the transportation field. Within the philosophy of Career and Technology Studies, *students* in Mechanics *will*:

- develop the knowledge, skills and attitudes within the context of the school and the community to achieve success in personal and work life
- apply effective and responsible decision-making strategies to the design, service and repair of transportation vehicles
- link the knowledge, skills and attitudes developed in other courses in meaningful and practical ways to the field of mechanics
- demonstrate flexibility, cooperative work behaviours and effective communication and leadership skills
- link theory and practice, using available resources, tools and materials responsibly, safely and efficiently
- develop estimating and reporting skills
- become better informed consumers

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- develop manual and technological skills
- exercise safe work and environmental practices
- expand personal knowledge and appreciation of further education and career options, and opportunities related to the transportation industry
- determine the economic significance of the transportation industry in the local, national and global community.

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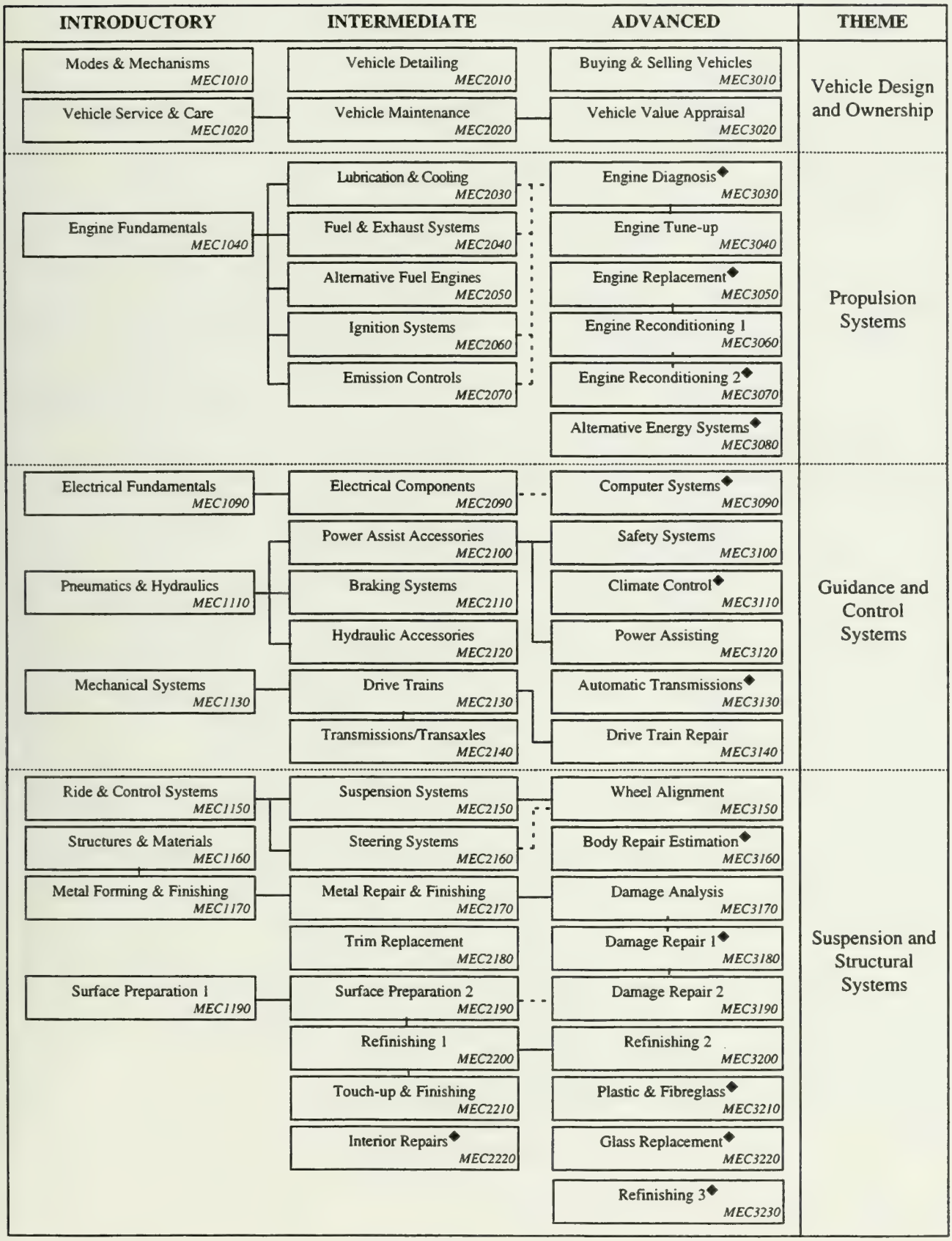
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

◆Refer to specific modules for additional prerequisites.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE MEC1010: MODES & MECHANISMS

Level: Introductory

Theme: Vehicle Design and Ownership

Prerequisite: None

Module Description: Students research, design, build and test a model of a transportation vehicle, using a simple power source, common materials and tools.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools, and follow established lab procedures
- list and describe operating systems and structures common to all modes of transportation
- research, design, build and test a concept vehicle
- demonstrate basic competencies.

MODULE MEC1020: VEHICLE SERVICE & CARE

Level: Introductory

Theme: Vehicle Design and Ownership

Prerequisite: None

Module Description: Students develop knowledge, skills and attitudes to care for and service a motor vehicle.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools, and follow established lab procedures
- develop a preventive maintenance service schedule for a vehicle
- inspect and service a vehicle according to the vehicle service schedule
- clean and apply a protective coating to the exterior and interior surfaces of a vehicle for use or storage
- demonstrate basic competencies.

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MODULE MEC1040: ENGINE FUNDAMENTALS

Level: Introductory

Theme: Propulsion Systems

Prerequisite: None

Module Description: Students investigate and describe operating principles, construction and applications of engines.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools, and follow established lab procedures
- compare operating principles of two- and four-cycle piston engines
- determine the condition of an internal combustion engine
- describe the by-products of combustion and their impact on the environment
- demonstrate basic competencies.

MODULE MEC1090: ELECTRICAL FUNDAMENTALS

Level: Introductory

Theme: Guidance and Control Systems

Prerequisite: None

Module Description: Students identify and describe the operating principles and applications of electricity.

Module Learner Expectations: *The student will:*

- demonstrate safe use of electrical tools and equipment, and follow established lab procedures
- apply electrical principles and concepts to test electrical circuits and components
- demonstrate basic competencies.

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MODULE MEC1110: PNEUMATICS & HYDRAULICS

Level: Introductory

Theme: Guidance and Control Systems

Prerequisite: None

Module Description: Students identify and describe the operating principles and applications of pneumatic and hydraulic systems.

Module Learner Expectations: *The student will:*

- demonstrate the safe use of pneumatic and hydraulic tools and equipment, and follow established lab procedures
- compare operating principles of pneumatic and hydraulic systems
- apply principles and concepts of pneumatics and hydraulics to test and operate a pneumatic and/or hydraulic system
- demonstrate basic competencies.

MODULE MEC1130: MECHANICAL SYSTEMS

Level: Introductory

Theme: Guidance and Control Systems

Prerequisite: None

Module Description: Students identify and describe the operating principles and applications of mechanisms used to transmit and control mechanical energy.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools, and follow established lab procedures
- describe principles and concepts related to the use of mechanisms to control and transmit force and motion in a mechanical system
- apply basic principles and concepts of mechanical systems
- demonstrate basic competencies.

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MODULE MEC1150: RIDE & CONTROL SYSTEMS

Level: Introductory

Theme: Suspension and Structural Systems

Prerequisite: None

Module Description: Students develop a basic knowledge of ride and control systems associated with vehicles.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools, and follow established lab procedures
- describe the purpose, operation and interdependent nature of ride and control systems
- inspect and service ride and control systems
- demonstrate basic competencies.

MODULE MEC1160: STRUCTURES & MATERIALS

Level: Introductory

Theme: Suspension and Structural Systems

Prerequisite: None

Module Description: Students identify the types of materials and components used in vehicle construction.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools, and follow established lab procedures
- explain the relationship between the function of a vehicle and the materials used in its construction
- examine and identify the basic parts and materials used in vehicle construction
- demonstrate basic competencies.

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MODULE MEC1170: METAL FORMING & FINISHING

Level: Introductory

Theme: Suspension and Structural Systems

Prerequisite: MEC1160 Structures & Materials

Module Description: Students repair and re-form damaged metal panels.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when metal forming and finishing, and follow established lab procedures
- describe effects of physical damage caused by distortion and corrosion on sheet metal components
- apply metal forming and finishing skills to repair minor panel damage
- demonstrate basic competencies.

MODULE MEC1190: SURFACE PREPARATION 1

Level: Introductory

Theme: Suspension and Structural Systems

Prerequisite: None

Module Description: Students assess the state of a painted surface, and use appropriate restoration procedures.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices for surface preparation, and follow established lab procedures
- identify products, equipment and procedures associated with surface preparation
- prepare and perform a surface preparation
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE MEC2010: VEHICLE DETAILING

Level: Intermediate

Theme: Vehicle Design and Ownership

Prerequisite: None

Module Description: Students develop the skills required to restore and enhance the exterior finishes of a vehicle.

Module Learner Expectations: *The student will:*

- state personal and environmental hazards associated with the use of cleaning and waxing agents
- identify and describe materials available to enhance the appearance of a vehicle
- demonstrate correct cleaning and treatment of engine parts and exterior finishes, including paint, glass, vinyl and rubber surfaces
- install a trim or accessory part according to standard practice
- demonstrate basic competencies.

MODULE MEC2020: VEHICLE MAINTENANCE

Level: Intermediate

Theme: Vehicle Design and Ownership

Prerequisite: MEC1020 Vehicle Service & Care

Module Description: Students perform the basic service requirements necessary to ensure adequate maintenance of a motor vehicle.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with vehicles, and follow established lab procedures
- identify vehicle service requirements as per manufacturer's recommendations
- conduct a motor vehicle inspection considering age of vehicle, distance travelled, service conditions and history
- service and repair a motor vehicle according to vehicle condition and service schedule
- demonstrate basic competencies.

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MODULE MEC2030: LUBRICATION & COOLING

Level: Intermediate

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students diagnose, maintain and service the lubrication and cooling systems of a typical four-cycle gasoline engine.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with vehicle engine fluids
- identify and describe functions and operations of engine cooling and lubrication system components
- diagnose and correct lubrication and cooling system faults
- demonstrate basic competencies.

MODULE MEC2040: FUEL & EXHAUST SYSTEMS

Level: Intermediate

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students diagnose, maintain and service the fuel and exhaust system of a typical four-cycle gasoline engine.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with volatile liquids and combustion gases
- identify and describe functions and operations of engine fuel and exhaust system components
- diagnose and correct fuel and exhaust system faults
- demonstrate basic competencies.

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MODULE MEC2050: ALTERNATIVE FUEL ENGINES

Level: Intermediate

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students determine alternative fuels used to power motor vehicles.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with alternative fuel vehicles
- determine the type of fuel that is best suited to a particular use and type of vehicle
- service an alternative fuel vehicle, recognizing its unique maintenance requirements
- demonstrate basic competencies.

MODULE MEC2060: IGNITION SYSTEMS

Level: Intermediate

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students identify the basic components and parts of ignition systems used on internal combustion engines, and service and repair an ignition system.

Module Learner Expectations: *The student will:*

- follow electrical safety guidelines, by accurately interpreting and using instruction manuals
- explain how a timed high voltage spark is achieved in magneto, point and electronic ignition systems
- recognize the drivability symptoms, and use visual and instrument checks to diagnose ignition system faults
- service and repair an ignition system
- demonstrate basic competencies.

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MODULE MEC2070: EMISSION CONTROLS

Level: Intermediate

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students describe the importance of controlling emissions and the technology applied to vehicles to meet prescribed standards.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with emission control systems
- list and describe vehicle pollutants and their effects on the environment
- describe types and characteristics of pre- and post-combustion emission systems
- identify emission control components
- diagnose and service emission control systems
- demonstrate basic competencies.

MODULE MEC2090: ELECTRICAL COMPONENTS

Level: Intermediate

Theme: Guidance and Control Systems

Prerequisite: MEC1090 Electrical Fundamentals

Module Description: Students identify and describe the basic use and testing of the electrical components of a typical motor vehicle.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with electrical components
- describe the function and operation of a vehicle's electrical systems and components
- identify electrical faults, by using standard diagnostic and testing procedures
- test and service electrical components
- demonstrate basic competencies.

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MODULE MEC2100: POWER ASSIST ACCESSORIES

Level: Intermediate

Theme: Guidance and Control Systems

Prerequisite: MEC1110 Pneumatics & Hydraulics

Module Description: Students identify and explain the function of components and parts of power assist accessories.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working on power accessories
- list components and state functions of power assist accessories
- describe and check major components of power accessories
- service and repair power accessories
- demonstrate basic competencies.

MODULE MEC2110: BRAKING SYSTEMS

Level: Intermediate

Theme: Guidance and Control Systems

Prerequisite: MEC1110 Pneumatics & Hydraulics

Module Description: Students develop the necessary knowledge, skills and attitudes to diagnose, service and maintain a braking system according to accepted trade practices.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working on brakes
- identify brake design and components, and emergency brake systems
- inspect and analyze disc and drum brake systems
- interpret parts and service manuals to perform routine brake system service and maintenance
- demonstrate basic competencies.

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MODULE MEC2120: HYDRAULIC ACCESSORIES

Level: Intermediate

Theme: Guidance and Control Systems

Prerequisite: MEC1110 Pneumatics & Hydraulics

Module Description: Students develop a basic knowledge of hydraulic components, applications and servicing techniques.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with hydraulic systems
- describe functions of hydraulic components in a hydraulic system
- interpret parts and service manuals to provide appropriate maintenance and service procedures on a hydraulic system
- service hydraulic components
- demonstrate basic competencies.

MODULE MEC2130: DRIVE TRAINS

Level: Intermediate

Theme: Guidance and Control Systems

Prerequisite: MEC1130 Mechanical Systems

Module Description: Students identify the purpose, describe the operation and perform the servicing of a vehicle drive train.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working with vehicle drive trains
- identify purpose and describe function of the major drive train components
- execute inspection, diagnostic, service and repair procedures on specific drive train components
- identify career opportunities related to drive train repairs
- demonstrate basic competencies.

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MODULE MEC2140: TRANSMISSIONS/TRANSAXLES

Level: Intermediate

Theme: Guidance and Control Systems

Prerequisite: MEC2130 Drive Trains

Module Description: Students perform inspection service and repair procedures on manual transmissions, transaxles and clutch assemblies.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working on transmissions and transaxles
- identify parts and trace power flow through a clutch, manual transmission, and differential and manual transaxle assembly
- inspect, diagnose, service and repair clutch, manual transmission or manual transaxle assemblies
- demonstrate basic competencies.

MODULE MEC2150: SUSPENSION SYSTEMS

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC1150 Ride & Control Systems

Module Description: Students develop the knowledge, skills and attitudes necessary to service and maintain vehicle suspension systems.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working on suspension systems
- identify the purpose and function of suspension parts
- identify worn or defective suspension parts
- service a suspension system
- demonstrate basic competencies.

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MODULE MEC2160: STEERING SYSTEMS

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC1150 Ride & Control Systems

Module Description: Students develop the knowledge, skills and attitudes necessary to maintain a steering system.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when working on steering systems
- identify different steering system designs and applications
- list driving symptoms that indicate worn or defective steering parts
- service/repair a vehicle steering system
- demonstrate basic competencies.

MODULE MEC2170: METAL REPAIR & FINISHING

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC1170 Metal Forming & Finishing

Module Description: Students analyze and repair metal damage.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices when metal forming and finishing metal damage
- identify different damage conditions and repair procedures for metal damage
- repair metal damage to a vehicle
- demonstrate basic competencies.

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MODULE MEC2180: TRIM REPLACEMENT

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: None

Module Description: Students demonstrate the removal and repair of trim parts, with an emphasis on removal and installation without damage.

Module Learner Expectations: *The student will:*

- demonstrate safe use of tools and chemicals for trim replacement
- investigate interior and exterior trim systems used to enhance appearances
- remove and install trim and weather-stripping
- analyze and install enhancement trim
- identify further education and career opportunities related to trim replacement and repair services
- demonstrate basic competencies.

MODULE MEC2190: SURFACE PREPARATION 2

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC1190 Surface Preparation 1

Module Description: Students perform advanced surface preparations.

Module Learner Expectations: *The student will:*

- demonstrate safe practices when performing advanced surface preparation
- explain materials and practices for performing advanced surface preparation
- carry out an advanced surface preparation
- demonstrate basic competencies.

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MODULE MEC2200: REFINISHING 1

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC2190 Surface Preparation 2

Module Description: Students demonstrate metal surface refinishing procedures.

Module Learner Expectations: *The student will:*

- demonstrate safe practices and follow all warnings identified by product manufacturers, Workplace Hazardous Materials Information System (WHMIS), and Occupational Health and Safety
- identify and describe refinishing products and equipment
- demonstrate proper refinishing application
- demonstrate basic competencies.

MODULE MEC2210: TOUCH-UP & FINISHING

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC2200 Refinishing 1

Module Description: Students determine and use the appropriate materials, tools and processes for minor surface repairs.

Module Learner Expectations: *The student will:*

- practise safe handling, use and disposal of hazardous touch-up and finishing products
- identify the techniques and products required to complete a minor surface repair
- demonstrate the skills required to prepare and refinish a spot repair
- demonstrate basic competencies.

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MODULE MEC2220: INTERIOR REPAIRS

Level: Intermediate

Theme: Suspension and Structural Systems

Prerequisite: MEC1160 Structures & Materials

Module Description: Students search for and use the appropriate products and techniques to maintain vehicle interior surface materials.

Module Learner Expectations: *The student will:*

- practise safe handling, use and disposal of hazardous cleaning and repair products
- analyze type of repair or restoration required, and identify the techniques/ products necessary to repair and/or restore an interior surface
- clean and/or repair an interior surface
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE MEC3010: BUYING & SELLING VEHICLES

Level: Advanced

Theme: Vehicle Design and Ownership

Prerequisite: None

Module Description: Students develop the skills required to make an informed purchase or sale of a vehicle.

Module Learner Expectations: *The student will:*

- investigate and determine the type of vehicle that best meets a defined need
- evaluate and describe the condition of a vehicle
- plan a strategy to sell or buy a vehicle
- recognize the legal rights and responsibilities of both the seller and purchaser
- identify safety concerns and regulations when buying and selling vehicles that have been repaired after an accident
- demonstrate basic competencies.

MODULE MEC3020: VEHICLE VALUE APPRAISAL

Level: Advanced

Theme: Vehicle Design and Ownership

Prerequisite: MEC2020 Vehicle Maintenance

Module Description: Students demonstrate the procedures used by industry to estimate the cost of a repair and the market value of a vehicle.

Module Learner Expectations: *The student will:*

- demonstrate established safety and care procedures when inspecting vehicles
- inspect a vehicle to determine its overall condition and repair requirements
- apply standards used by the vehicle repair industry to appraise the condition and value of a vehicle
- outline the best business practices to follow when situations of uncertainty or conflicting interests occur relative to an appraisal
- demonstrate basic competencies.

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MODULE MEC3030: ENGINE DIAGNOSIS

Level: Advanced

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students learn to diagnose the condition of an engine for worn or damaged parts and/or improper adjustments.

Module Learner Expectations: *The student will:*

- demonstrate safe working practices while conducting an engine performance diagnosis
- diagnose the condition of an operating engine, using body senses (touch, sight, hearing)
- assess engine conditions, using specialized test equipment and on-board diagnostic systems
- provide a report that describes the condition of an engine
- demonstrate basic competencies.

MODULE MEC3040: ENGINE TUNE-UP

Level: Advanced

Theme: Propulsion Systems

Prerequisite: MEC3030 Engine Diagnosis

Module Description: Students diagnose, service and repair engine, fuel, ignition, charging and starting systems.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices while performing an engine tune-up
- determine the mechanical condition of an engine
- check and service a carburetor and a fuel injection system
- use diagnostic equipment to check, interpret and service ignition, charging, starting, emission control and exhaust systems
- demonstrate basic competencies.

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MODULE MEC3050: ENGINE REPLACEMENT

Level: Advanced

Theme: Propulsion Systems

Prerequisite: MEC1040 Engine Fundamentals

Module Description: Students remove and install an engine in a chassis.

Module Learner Expectations: *The student will:*

- use engine lifting equipment and related tools safely
- identify steps involved to prepare a vehicle for engine removal
- apply mechanical skills to remove and replace engine accessories
- apply mechanical skills to remove and install an engine in a chassis
- perform post engine installation start-up and adjustment procedures
- demonstrate basic competencies.

MODULE MEC3060: ENGINE RECONDITIONING 1

Level: Advanced

Theme: Propulsion Systems

Prerequisite: MEC3050 Engine Replacement

Module Description: Students determine the need for service, and perform the required service, on the cylinder head and related components of an engine.

Module Learner Expectations: *The student will:*

- demonstrate safe work procedures related to cylinder head work
- determine the condition of a cylinder head before and after disassembly
- recondition a cylinder head and its related components
- reassemble and install a cylinder head
- demonstrate basic competencies.

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MODULE MEC3070: ENGINE RECONDITIONING 2

Level: Advanced

Theme: Propulsion Systems

Prerequisite: MEC3050 Engine Replacement

Module Description: Students determine the need for service, and perform service, on a cylinder block assembly and related components of an engine.

Module Learner Expectations: *The student will:*

- demonstrate safe work procedures while reconditioning a cylinder block
- determine the condition of a cylinder block before and after disassembly
- recondition a cylinder block and its related components
- reassemble a cylinder block assembly
- demonstrate basic competencies.

MODULE MEC3080: ALTERNATIVE ENERGY SYSTEMS

Level: Advanced

Theme: Propulsion Systems

Prerequisite: MEC2050 Alternative Fuel Engines

Module Description: Students describe why vehicle manufacturers continue to build the crank-piston internal combustion gasoline engine. Students also identify and describe future engine designs.

Module Learner Expectations: *The student will:*

- research and describe the historical development of piston engine designs from Nickolous Otto's engine to the present
- describe the use of different fuels and engine designs in modern day vehicles
- identify and describe future developments in fuels and engine designs
- demonstrate basic competencies.

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MODULE MEC3090: COMPUTER SYSTEMS

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC2070 Emission Controls

Module Description: Students provide an overview of the applications of computer management systems used in modern vehicles.

Module Learner Expectations: *The student will:*

- demonstrate established safety and care procedures related to computer management systems
- identify the principles that apply to all computer management systems
- locate the components of selected computer management systems and describe their function
- demonstrate how computer management systems operate
- perform diagnostic analyses of selected computer management systems and make required repairs to or replacement of malfunctioning parts
- demonstrate basic competencies.

MODULE MEC3100: SAFETY SYSTEMS

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC2100 Power Assist Accessories

Module Description: Students describe how safety systems can be tested, diagnosed, replaced or repaired.

Module Learner Expectations: *The student will:*

- demonstrate established safety and care procedures while working with safety systems
- list and compare safety systems that protect vehicle occupants
- diagnose and service vehicle safety systems
- demonstrate basic competencies.

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MODULE MEC3110: CLIMATE CONTROL

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC2030 Lubrication & Cooling

Module Description: Students expand their knowledge of the purpose, operation and servicing of standard heating and air conditioning systems.

Module Learner Expectations: *The student will:*

- demonstrate established safety and care procedures when working with climate control systems
- identify the purpose and describe the functions of heater and air conditioning system components
- perform inspection, diagnosis, service and repair procedures on heater and air conditioning systems
- identify global concerns about the release of refrigerants into the atmosphere as well as the alternatives to standard refrigerants, and identify the required recycling procedures
- demonstrate basic competencies.

MODULE MEC3120: POWER ASSISTING

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC2100 Power Assist Accessories

Module Description: Students further develop their knowledge of the purpose, operation, service and repair of pneumatic, hydraulic and electric power assist devices.

Module Learner Expectations: *The student will:*

- demonstrate established safety and care procedures when working with power assists
- identify applications of power assist components to various vehicle systems and determine the rationale for each application
- perform service and repair procedures to pneumatic, hydraulic and electric power assist devices according to manufacturers' recommendations
- demonstrate basic competencies.

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MODULE MEC3130: AUTOMATIC TRANSMISSIONS

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC1110 Pneumatics & Hydraulics

Module Description: Students develop knowledge of automatic transmissions and transaxles, and skills in diagnosing and executing minor automatic transmission and transaxle repair requirements.

Module Learner Expectations: *The student will:*

- demonstrate established safety and care procedures when working with automatic transmissions and transaxles
- identify the parts of a torque converter and automatic transmission or transaxle, and determine the path of power and the shifting control operation in each gear setting
- inspect, diagnose, service and complete a minor repair to an automatic transmission and transaxle assembly
- demonstrate basic competencies.

MODULE MEC3140: DRIVE TRAIN REPAIR

Level: Advanced

Theme: Guidance and Control Systems

Prerequisite: MEC2130 Drive Trains

Module Description: Students perform overhauls on clutch, transmission and differential assemblies.

Module Learner Expectations: *The student will:*

- demonstrate established safe work practices, and follow established lab procedures
- replace a clutch assembly
- remove, overhaul and replace a manual transmission/transaxle
- measure and adjust a differential assembly
- overhaul a drive axle assembly
- demonstrate basic competencies.

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MODULE MEC3150: WHEEL ALIGNMENT

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC2150 Suspension Systems

Module Description: Students develop the knowledge, skills and attitudes necessary for repairing and aligning various vehicle steering systems.

Module Learner Expectations: *The student will:*

- follow established safe work procedures
- investigate and determine the condition of various components that affect wheel alignment and tracking
- identify measurements and angles used to check and adjust suspension and steering systems
- use specialized alignment equipment to check and adjust alignment angles on various suspension types to manufacturers' specifications
- use road test information to determine the quality of service work performed
- demonstrate basic competencies.

MODULE MEC3160: BODY REPAIR ESTIMATION

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC1160 Structures & Materials

Module Description: Students apply knowledge in estimating, including close attention to detail in determining the cost of a repair.

Module Learner Expectations: *The student will:*

- state the role of insurance in the body repair industry and legal obligations involved in estimating
- identify and describe types of body damage
- outline skills needed to successfully estimate collision damage
- complete an estimate by determining what parts/components are to be replaced or repaired and their subsequent costs
- demonstrate basic competencies.

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MODULE MEC3170: DAMAGE ANALYSIS

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC2170 Metal Repair & Finishing

Module Description: Students identify and examine physical damage caused by collisions, and learn cost estimating procedures.

Module Learner Expectations: *The student will:*

- demonstrate established safe work procedures
- identify types and signs of collision damage
- examine and use measurements to determine extent of vehicle damage
- prepare a repair strategy for a given vehicle
- demonstrate basic competencies.

MODULE MEC3180: DAMAGE REPAIR 1

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC2170 Metal Repair & Finishing

Module Description: Students examine the methods used to complete a repair involving removing, replacing and aligning of body parts.

Module Learner Expectations: *The student will:*

- demonstrate established safety procedures
- follow an approved sequence of repairs involving removing and replacing damaged external parts
- align parts used to repair and prepare components for painting or priming
- remove, repair or replace trim parts as required
- demonstrate basic competencies.

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MODULE MEC3190: DAMAGE REPAIR 2

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC3180 Damage Repair 1

Module Description: Students examine methods used to complete a collision repair involving unibody parts replacement and frame correction.

Module Learner Expectations: *The student will:*

- demonstrate established safe work procedures
- describe construction features and materials used in vehicle bodies and methods of repair
- use a "bench" frame straightening system and related measurements to straighten/align a component
- identify misalignment of frame and suspension parts and components
- correct frame/body alignment involving replacement of unibody panels and use of hydraulic jacks and welders
- explain the importance of proper frame and suspension alignment, including legal implications
- demonstrate basic competencies.

MODULE MEC3200: REFINISHING 2

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC2200 Refinishing 1

Module Description: Students demonstrate finishing skills and techniques related to the preparation and application of metallic paints.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices and follow all warnings identified by product manufacturers, Workplace Hazardous Materials Information System (WHMIS), and Occupational Health and Safety
- describe top coats, solvents and additives used in surface finishes
- apply metallic, tutone and/or base/clear coat and acrylic enamel finishes
- apply problem-solving techniques to paint and equipment problems
- demonstrate basic competencies.

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MODULE MEC3210: PLASTIC & FIBREGLASS

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC1160 Structures & Materials

Module Description: Students determine the types of plastic and fibreglass materials required for repairs, and perform appropriate repair procedures.

Module Learner Expectations: *The student will:*

- identify hazards and safety precautions to be observed when working with plastics
- describe types of plastics, welding equipment and bonding processes used to repair plastic parts
- apply plastic welding and/or bonding techniques to repair a plastic component
- identify types of fibreglass materials and repair procedures
- perform a fibreglass repair on a component
- demonstrate basic competencies.

MODULE MEC3220: GLASS REPLACEMENT

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC2180 Trim Replacement

Module Description: Students demonstrate knowledge, skills and practice related to vehicle glass installation and adjustment.

Module Learner Expectations: *The student will:*

- handle glass and related materials safely
- identify glass types and glass retaining systems
- demonstrate knowledge of tools and procedures used by glass technicians
- complete glass removal installations and adjustments
- demonstrate basic competencies.

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MODULE MEC3230: REFINISHING 3

Level: Advanced

Theme: Suspension and Structural Systems

Prerequisite: MEC3200 Refinishing 2

Module Description: Students demonstrate knowledge and skills of advanced finishing techniques, including custom painting, mixing, tinting, colour and texture matching.

Module Learner Expectations: *The student will:*

- demonstrate safe work practices, and follow all product warnings and labels identified by the product manufacturers, Workplace Hazardous Materials Information System (WHMIS), and Occupational Health and Safety
- investigate and describe advanced products, techniques and equipment used to achieve an acceptable original equipment manufacturer finish
- apply an advanced level finish
- demonstrate basic competencies.

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TOURISM STUDIES

B. STRAND RATIONALE AND PHILOSOPHY

Tourism is a series of human interactions. It is sometimes referred to as a system, sometimes as an activity and often as an industry. A worldwide phenomenon of global economic importance, tourism is the result of people's decisions to travel. Travellers who become tourists may have different purposes for moving between locations, including visiting family and friends, attending a business meeting and enjoying leisure activities. Learning and participating in tourism activities helps people to develop an appreciation for the world and its people. Travelling brings one culture in contact with another and allows individuals to appreciate the beauty in cultural diversity. It has been said that tourism is the industry of peace; tourism promotes understanding, acceptance and appreciation of others.

Tourism is one of Alberta's fastest growing industries. As the third largest industry in Alberta, tourism employs 100 000 people and generates $2.5 billion in revenues. By the year 2000, tourism is expected to rise to one of the top revenue generators in the province. Almost 70 per cent of the province's tourism business comes from Albertans travelling within their own province.★

Tourism is a sustainable industry. It encompasses business, organizations, labour and government agencies that provide, totally or partly, the means of transportation, goods, services, accommodation and other facilities, programs and resources. Providing quality guest service and hospitality can mean the difference between success and failure in the tourism industry. Effective communication skills, anticipating and satisfying guest needs, and having a professional appearance and behaviour are basic skills students will need in whatever career path they choose. Tourism Studies, a strand in Career and Technology Studies, can provide relevant, practical situations for students to develop and demonstrate these important skills.

Tourism Studies helps students develop a broad awareness of the economic, social and environmental impact of tourism in the province of Alberta. Students will develop an understanding of the present and potential economic contributions of tourism in the context of their community, Alberta, Canada and the world. However, the impact of tourism can destroy the physical and cultural resources that are the heart of the industry. Community planning and development of tourism is a cooperative effort between private and public sectors and between individuals and organizations. Creative and responsible decisions made at the local level can

★ Arlene McGinn and Deanna Binder. *Meeting the Needs: Tourism in Secondary Schools: A Predevelopment Curriculum Research Report.* Edmonton, AB: Alberta Education, 1990.

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translate into social, cultural and economic benefits for the entire community. As citizens, future employees and future business owners, students will benefit from a better understanding of the importance and implications of tourism development and activities.

Tourism Studies provides the opportunity for students to link concrete and psychomotor learning with abstract, cognitive levels of learning. By developing basic and career-specific knowledge, skills and attitudes, students will have the flexibility to adapt to a variety of situations. They will meet the challenges of their personal and work lives and will further educational goals with increased ability and confidence. Students will develop tourism knowledge, skills and attitudes in the context of self, family, society and the workplace.

Within the philosophy of Career and Technology Studies, *students* in Tourism Studies *will*:

- demonstrate an appreciation for Alberta's cultural and environmental heritage, and explain the importance of protecting and preserving them for future generations
- explain the development of the tourism industry in Alberta and its impact on the province's present and future economic, social and environmental well-being
- demonstrate pride in the local community and in Alberta by studying, promoting and participating in tourism activities
- describe the importance of tourism activities for promoting greater understanding and respect for cultures and individual differences
- exhibit the knowledge, skills and attitudes of quality guest service and hospitality, which are applicable to personal, community and career roles
- use organizational and resource management skills, applicable to personal and career roles, by planning and facilitating real or simulated tourism events in the school and community
- demonstrate individual responsibility, self-management and self-esteem through a variety of practical, relevant learning activities
- use creative thinking skills, including problem solving, decision making, idea generation, synthesis and ability to predict outcomes
- access, interpret and evaluate tourism information, and communicate this information using a variety of methods
- use interpersonal skills, including teamwork and leadership, through a wide range of group and class activities that have practical tourism industry application and more general social and citizenship value
- demonstrate knowledge and understanding of the scope of occupations and career paths in the tourism industry, including small business and entrepreneurship, and demonstrate knowledge and understanding of industry standards.

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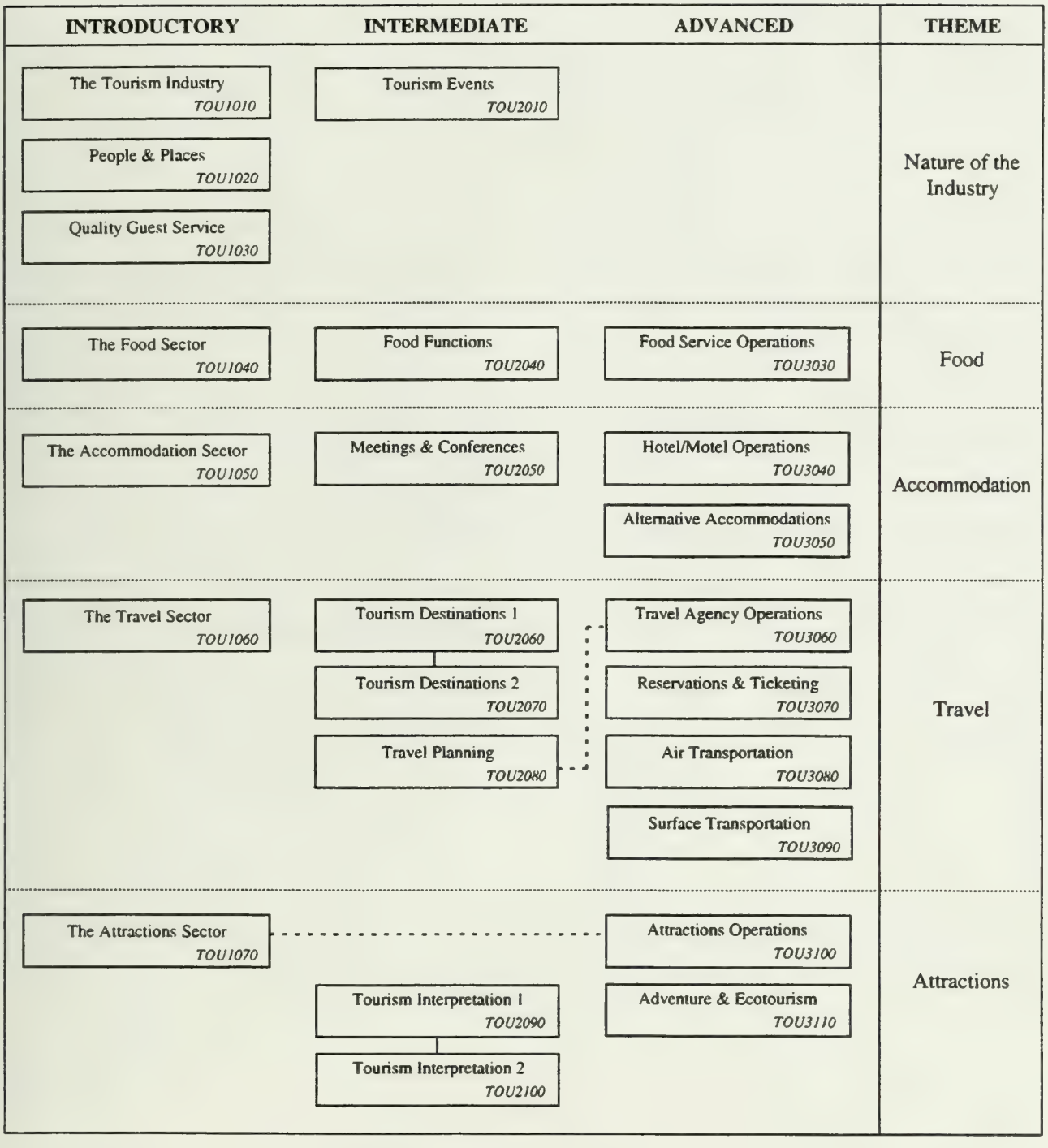
SCOPE AND SEQUENCE



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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE TOU1010: THE TOURISM INDUSTRY

Level: Introductory

Theme: Nature of the Industry

Prerequisite: None

Module Description: Students analyze the organizational structure of the tourism industry at local and provincial levels, and investigate employment opportunities in tourism.

Module Learner Expectations: *The student will:*

- describe the role of business, organizations, labour and government agencies in the tourism industry
- assess the effect different travel motivators have on industry activity
- evaluate local tourism ventures and promotion strategies used to attract visitors
- identify employment opportunities in the tourism industry
- demonstrate basic competencies.

MODULE TOU1020: PEOPLE & PLACES

Level: Introductory

Theme: Nature of the Industry

Prerequisite: None

Module Description: Students design strategies for maintaining and enhancing the well-being of tourists, including individuals and groups, such as families. Students also design strategies for preserving the cultural and environmental heritage of a tourism area.

Module Learner Expectations: *The student will:*

- analyze the cultural and environmental impact of tourism on tourism destinations
- identify strategies for preserving the cultural and environmental heritage of Alberta
- describe how tourism can promote acceptance and understanding among cultures
- describe strategies used in the industry for maintaining and enhancing the well-being of tourists
- demonstrate basic competencies.

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MODULE TOU1030: QUALITY GUEST SERVICE

Level: Introductory

Theme: Nature of the Industry

Prerequisite: None

Module Description: Students demonstrate the knowledge, skills and attitudes of quality guest service, including hospitality, effective communication and workplace safety.

Module Learner Expectations: *The student will:*

- identify the importance of providing professional service
- demonstrate basic competencies in guest service and hospitality, including maintaining the safety of self and others
- demonstrate effective communication and problem-solving skills in dealing with guest concerns
- demonstrate a positive attitude toward the guest, and demonstrate a professional team approach
- demonstrate basic competencies.

MODULE TOU1040: THE FOOD SECTOR

Level: Introductory

Theme: Food

Prerequisite: None

Module Description: Students evaluate food service establishments, explain basic food-handling principles, demonstrate satisfactory food service skills and adapt service standards to meet the needs of guests.

Module Learner Expectations: *The student will:*

- compare a variety of local food establishments, and identify career opportunities in the food sector
- develop satisfactory food service skills
- develop standards and criteria for excellent food service, and modify service to meet guest needs
- demonstrate basic competencies.

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MODULE TOU1050: THE ACCOMMODATION SECTOR

Level: Introductory

Theme: Accommodation

Prerequisite: None

Module Description: Students research accommodation options available, discuss basic principles of the accommodations industry, and develop service strategies for handling individual guest requirements.

Module Learner Expectations: *The student will:*

- describe the range of accommodations available to travellers in Alberta
- develop a basic understanding of business operations in the accommodation sector
- describe strategies for meeting individual guest requirements and maintaining the well-being of guests
- identify employment opportunities in the accommodation sector
- demonstrate basic competencies.

MODULE TOU1060: THE TRAVEL SECTOR

Level: Introductory

Theme: Travel

Prerequisite: None

Module Description: Students research a variety of travel services, demonstrate basic travel information and promotion skills, and investigate career opportunities in providing travel information.

Module Learner Expectations: *The student will:*

- describe travel services available to the traveller in Alberta
- develop strategies for addressing visitor inquiries
- provide basic travel and transportation information to the traveller in Alberta
- identify employment opportunities in the travel sector
- demonstrate basic competencies.

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MODULE TOU1070: THE ATTRACTIONS SECTOR

Level: Introductory

Theme: Attractions

Prerequisite: None

Module Description: Students analyze and compare the natural, cultural and recreational attractions available in Alberta, develop strategies to maintain the well-being of guests, and investigate employment opportunities in the attractions sector.

Module Learner Expectations: *The student will:*

- describe natural, cultural and recreational attractions, and explain their role in the tourism industry
- describe the range of visitor activities and services provided at attraction facilities
- identify regulations, procedures and strategies for maintaining the well-being of guests in attraction facilities
- identify employment opportunities in the attractions sector
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE TOU2010: TOURISM EVENTS

Level: Intermediate

Theme: Nature of the Industry

Prerequisite: None

Module Description: Students plan, organize, facilitate and evaluate a tourism event in the school or community.

Module Learner Expectations: *The student will:*

- describe different types of tourism events, and discuss the purposes of such events
- develop a project plan for a tourism event in the school or community, and facilitate that event
- develop interpersonal skills of teamwork and leadership, by working with others to facilitate an event
- evaluate the success of the project plan and tourism event
- demonstrate basic competencies.

MODULE TOU2040: FOOD FUNCTIONS

Level: Intermediate

Theme: Food

Prerequisite: None

Module Description: Students demonstrate the knowledge and skills of serving food for a food function that they have planned in order to meet the needs of a client.

Module Learner Expectations: *The student will:*

- demonstrate knowledge of menu and banquet terms and of food safety
- develop a menu and a function plan to meet the needs of a client
- facilitate the food function, and evaluate the success of the function plan
- demonstrate basic competencies.

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MODULE TOU2050: MEETINGS & CONFERENCES

Level: Intermediate

Theme: Accommodation

Prerequisite: None

Module Description: Students develop a meeting plan, facilitate and evaluate the success of the meeting plan, and investigate career opportunities in meeting and conference planning.

Module Learner Expectations: *The student will:*

- explain the importance of the meeting and conference business
- develop an understanding of the process of meeting and conference planning
- develop a meeting plan, facilitate the meeting and evaluate its success
- identify employment opportunities in conference planning
- demonstrate basic competencies.

MODULE TOU2060: TOURISM DESTINATIONS 1

Level: Intermediate

Theme: Travel

Prerequisite: None

Module Description: Students demonstrate knowledge of world tourism geography, by presenting travel information about North America and at least one other world region.

Module Learner Expectations: *The student will:*

- present knowledge of the basic geographical features of the world
- present specific knowledge of the physical geography, culture and economy of selected tourism destinations
- identify travel patterns in the world and how they are influenced
- develop knowledge and awareness of the major attractions and regions of North America, and practise communicating this information to others
- demonstrate basic competencies.

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MODULE TOU2070: TOURISM DESTINATIONS 2

Level: Intermediate

Theme: Travel

Prerequisite: TOU2060 Tourism Destinations 1

Module Description: Students demonstrate knowledge of world tourism geography, by presenting travel information about at least four major tourism regions of the world.

Module Learner Expectations: *The student will:*

- present specific knowledge of the physical geography, culture and economy of selected tourism destinations
- demonstrate basic research skills, transferable to travel counselling activities
- communicate, in travel counsellor situations, information about the major attractions and regions of the world
- demonstrate basic competencies.

MODULE TOU2080: TRAVEL PLANNING

Level: Intermediate

Theme: Travel

Prerequisite: None

Module Description: Students create and evaluate an Alberta tour package and an international travel package, including itinerary, tour and attractions information, and traveller information.

Module Learner Expectations: *The student will:*

- identify the range of travel planning activities, from day trips to escorted group tours
- describe how an itinerary is organized and describe what goes into one
- prepare itineraries to meet the needs of various clients
- identify employment opportunities in travel planning
- demonstrate basic competencies.

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MODULE TOU2090: TOURISM INTERPRETATION 1

Level: Intermediate

Theme: Attractions

Prerequisite: None

Module Description: Students evaluate the different types of interpretive media and demonstrate the basic skills of an information attendant, by conducting an interpretation program for a tourism activity.

Module Learner Expectations: *The student will:*

- define the term "interpretation", and describe opportunities for interpretation activities within the region
- list different interpretive media, and identify the factors that influence media selection/use
- develop an interpretation program for a tourism activity
- describe the duties of an information attendant, and practise the basic skills of information duty
- demonstrate basic competencies.

MODULE TOU2100: TOURISM INTERPRETATION 2

Level: Intermediate

Theme: Attractions

Prerequisite: TOU2090 Tourism Interpretation 1

Module Description: Students create, implement and evaluate interpretation programs for conducted and nonconducted activities. Students also demonstrate the skills of an effective leader in a conducted activity.

Module Learner Expectations: *The student will:*

- create, implement and evaluate an interpretation program for a conducted activity
- create, implement and evaluate an interpretation program for a nonconducted activity
- identify and perform the basic skills of an interpretation leader
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE TOU3030: FOOD SERVICE OPERATIONS

Level: Advanced

Theme: Food

Prerequisite: None

Module Description: Students relate trends and issues in food service to industry activity, design food service strategies, and present a marketing or venture plan for a food service business.

Module Learner Expectations: *The student will:*

- identify trends and issues in food service, and relate these to industry activity
- analyze, through research, food service marketing strategies
- prepare food service business strategies to satisfy customer expectations
- identify and describe various employment and business opportunities in food service
- demonstrate basic competencies.

MODULE TOU3040: HOTEL/MOTEL OPERATIONS

Level: Advanced

Theme: Accommodation

Prerequisite: None

Module Description: Students demonstrate correct check-in and check-out procedures, research the organization of a large hotel, analyze hotel marketing strategies, and present a marketing plan for a hotel department.

Module Learner Expectations: *The student will:*

- describe the organization of a major hotel and the role of key employees
- demonstrate correct check-in and check-out procedures commonly performed by front desk staff
- identify the variety of amenities and services that hotels offer to attract guests/clients
- describe a variety of functions handled by a hotel sales department, and develop a marketing plan for a hotel department
- identify employment and business opportunities in hotel/motel operations
- demonstrate basic competencies.

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MODULE TOU3050: ALTERNATIVE ACCOMMODATIONS

Level: Advanced

Theme: Accommodation

Prerequisite: None

Module Description: Students research and discuss issues related to alternative accommodations, develop a service strategy and standards, and present a marketing or venture plan for an alternative accommodation business.

Module Learner Expectations: *The student will:*

- identify the types of alternative accommodations available in Alberta, and describe their economic impact on the tourism industry
- identify development issues, and establish operating policies and service standards for a selected alternative accommodation
- develop a marketing or venture plan for a selected alternative accommodation business
- identify employment and business opportunities in alternative accommodations
- demonstrate basic competencies.

MODULE TOU3060: TRAVEL AGENCY OPERATIONS

Level: Advanced

Theme: Travel

Prerequisite: None

Module Description: Students research the operation of a travel agency and the role and work activities of a travel agent. Students also present a marketing plan for a travel agency.

Module Learner Expectations: *The student will:*

- list and describe services provided to clients by different types of travel agencies
- describe the relationship between travel agency, client and supplier in the tourism industry
- develop a marketing plan for a specialty travel agency
- investigate and report on the role and work activities of travel agents
- identify employment and business opportunities in retail travel
- demonstrate basic competencies.

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MODULE TOU3070: RESERVATIONS & TICKETING

Level: Advanced

Theme: Travel

Prerequisite: None

Module Description: Students process travel reservations, using a computer reservation system, develop an itinerary, and provide the traveller with information related to the itinerary/destination.

Module Learner Expectations: *The student will:*

- describe the conditions and requirements for domestic and international travel
- identify and apply terms used in travel reservations
- identify different travel arrangements, and develop an itinerary
- identify and provide the traveller with other important information related to the itinerary/destination; e.g., connections, transfers
- process a carrier reservation
- demonstrate basic competencies.

MODULE TOU3080: AIR TRANSPORTATION

Level: Advanced

Theme: Travel

Prerequisite: None

Module Description: Students research and report on the organization and operation of a major airline. Students also present a marketing plan for an airline.

Module Learner Expectations: *The student will:*

- describe the organization of the air transportation industry in Canada
- develop a marketing plan for an airline to attract and maintain business
- analyze and report on the operation of different departments in a major airline
- identify and describe trends and issues in the air transportation industry
- identify employment and business opportunities in the air transportation industry
- demonstrate basic competencies.

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MODULE TOU3090: SURFACE TRANSPORTATION

Level: Advanced

Theme: Travel

Prerequisite: None

Module Description: Students research the business operations and career opportunities of the rail, motor coach, auto and cruise travel industries. Students also present a variety of marketing strategies for a transportation industry.

Module Learner Expectations: *The student will:*

- describe the significant historical developments of the rail, motor coach, auto and cruise travel industries
- explain advantages and disadvantages of each mode of surface travel
- identify trends and issues in the surface transportation sector
- develop a marketing plan aimed at meeting the needs, wants and expectations of travellers, using surface transportation
- identify employment and business opportunities in the surface travel industries
- demonstrate basic competencies.

MODULE TOU3100: ATTRACTIONS OPERATIONS

Level: Advanced

Theme: Attractions

Prerequisite: None

Module Description: Students analyze the economic, social, cultural and environmental impact of attractions operations. Students also present a marketing plan for an attractions development.

Module Learner Expectations: *The student will:*

- describe the components of an attraction
- provide examples of trends and issues in attractions development
- identify and describe trends and issues in attractions operations
- develop a marketing plan for an attractions operation
- identify employment and business opportunities in attractions operations
- demonstrate basic competencies.

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MODULE TOU3110: ADVENTURE & ECOTOURISM

Level: Advanced

Theme: Attractions

Prerequisite: None

Module Description: Students analyze the economic, social and environmental factors that influence the development plan for an adventure or ecotourism venture. Students also compare management issues for different types of recreation areas.

Module Learner Expectations: *The student will:*

- identify the social and environmental impact of adventure and ecotourism development
- identify trends and issues in adventure and ecotourism operations
- describe the factors that influence decisions about recreation/adventure development
- develop a marketing plan for an adventure/ecotourism site
- identify employment and business opportunities in adventure and ecotourism
- demonstrate basic competencies.

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WILDLIFE

B. STRAND RATIONALE AND PHILOSOPHY

Wildlife is an important part of Canada's heritage. Canada is one of the few places in the world that still contains large natural ecosystems. Natural and wilderness areas of Canada contribute greatly to our quality of life and functioning of the global ecosystem.

But the future of Canada's wildlife cannot be taken for granted. Wild populations and ecosystems have become increasingly vulnerable to human population growth and technological development. Changes to ecosystems, brought about by phenomena such as global warming and the long-range transport of air pollutants, threaten both wildlife and people.

Recently, public concern for wildlife has expanded to embrace any living thing that is part of the natural ecosystem. Discussion of wildlife in this curriculum involves all wild organisms and their habitats—including wild plants, invertebrates and micro-organisms, as well as fishes, amphibians, reptiles, and the birds and mammals traditionally regarded as wildlife.★

Wildlife, a strand in Career and Technology Studies, will provide opportunities for students to view themselves as part of the global ecosystem. Students will be encouraged to share information and beliefs regarding environmental sustainability, and recognize the need to make informed choices that limit demands placed on ecosystems to sustainable levels.

Students in Wildlife will develop the knowledge, skills, attitudes, motivation and commitment to work individually and collectively, as private citizens and members of the work force, toward the conservation and responsible use of water, land, air, forests and wildlife. Within the philosophy of Career and Technology Studies, *students* in Wildlife *will*:

- develop greater awareness of the economic, environmental and social significance of wildlife in Alberta and the rest of the world

★ Wildlife Ministers' Council of Canada. *A Wildlife Policy for Canada.* Ottawa, ON: Environment Canada, 1990.

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- describe the characteristics of Alberta's wildlife, and identify trends in wildlife habitats and populations

- describe technologies and research programs designed to preserve biological diversity and enhance the sustainable, ecologically sound management of species and ecosystems

- translate sustainable development and conservation goals into viable plans for managing consumptive and nonconsumptive use of wildlife

- develop competencies and behaviours that have broad application to environmental career paths, and specific application to careers involving Alberta's wildlife.

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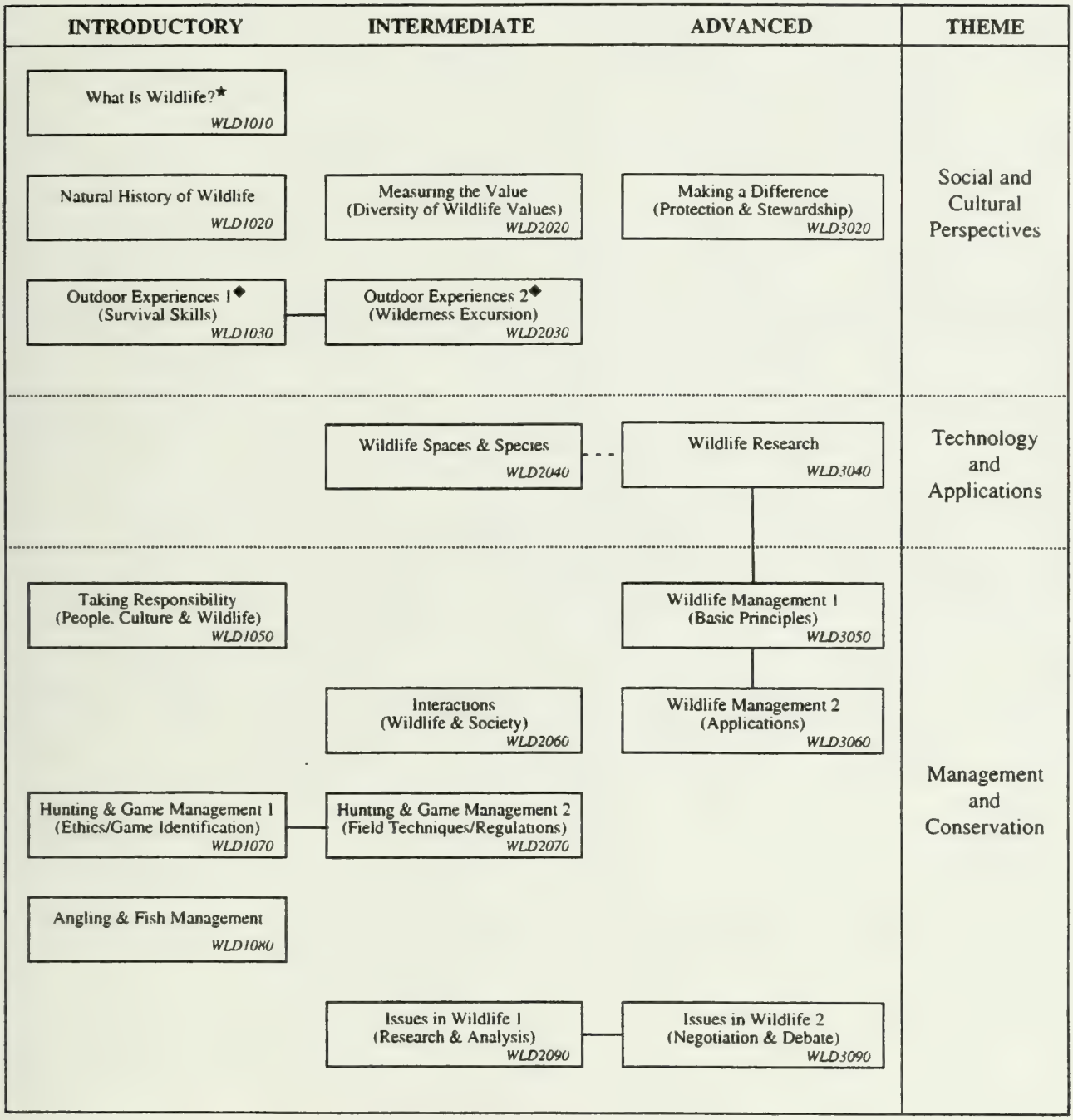
SCOPE AND SEQUENCE



——— Prerequisite - - - - Recommended sequence

★ Module provides a strong foundation for further learning in this strand.

◆ Refer to specific modules for additional prerequisites.

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MODULE LEARNER EXPECTATIONS: INTRODUCTORY LEVEL

MODULE WLD1010: WHAT IS WILDLIFE?

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students demonstrate knowledge of wildlife and ecosystems, and examine the need to manage and conserve wildlife.

Module Learner Expectations: *The student will:*

- provide a definition of wildlife
- describe interrelationships among ecosystem components
- explain the difference between wildlife conservation and preservation
- demonstrate basic competencies.

MODULE WLD1020: NATURAL HISTORY OF WILDLIFE

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students investigate the diversity of Canadian wildlife in terms of structure, behaviour and habitat, and compare Alberta wildlife with wildlife in other parts of the world.

Module Learner Expectations: *The student will:*

- describe the diversity of Canadian wildlife
- explain the structure, behaviour and habitat of an Alberta wildlife species
- compare and contrast Alberta's wildlife with wildlife in other parts of the world
- demonstrate basic competencies.

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MODULE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS)

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: Emergency First Aid (current certification)

Module Description: Students demonstrate the basic skills required for responsible participation in a range of outdoor activities.

Module Learner Expectations: *The student will:*

- demonstrate knowledge and skills necessary for responsible outdoor experiences
- conduct safe outdoor activities that have minimal environmental impact
- demonstrate basic competencies.

MODULE WLD1050: TAKING RESPONSIBILITY (PEOPLE, CULTURE & WILDLIFE)

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain the significance of wildlife in society, examine relationships among humans and wildlife, and research potential career opportunities in wildlife-related fields.

Module Learner Expectations: *The student will:*

- describe the social, economic and environmental significance of wildlife
- explain how personal needs, wants, beliefs and actions may influence wildlife and wildlife habitats
- identify careers in wildlife-related fields
- demonstrate basic competencies.

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MODULE WLD1070: HUNTING & GAME MANAGEMENT 1 (ETHICS/GAME IDENTIFICATION)

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain the role of regulated hunting in game management, identify Alberta's game animals, and demonstrate knowledge and skills that ensure safe and comfortable experiences in the outdoors.

Module Learner Expectations: *The student will:*

- explain game management practices and the role of regulated hunting in game management
- identify the distinguishing characteristics of Alberta's ungulates, carnivores, upland birds and waterfowls
- describe basic equipment and techniques required for safe and comfortable experiences in the outdoors
- demonstrate basic competencies.

MODULE WLD1080: ANGLING & FISH MANAGEMENT

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain the role of recreational fishing in the management and conservation of fish resources, and demonstrate knowledge of the responsible practices required for fishing or related outdoor activities.

Module Learner Expectations: *The student will:*

- explain the role of recreational fishing in the management of fish resources, and social and legal standards of conduct for game fishing
- identify and describe the distinguishing characteristics and habitats of Alberta's game fish
- describe basic fishing equipment and safe practices for fishing
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: INTERMEDIATE LEVEL

MODULE WLD2020: MEASURING THE VALUE (DIVERSITY OF WILDLIFE VALUES)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students assess the significance of wildlife in society, analyze relationships between humans and wildlife, and research career opportunities in wildlife-related fields.

Module Learner Expectations: *The student will:*

- compare and contrast the social, environmental and economic significance of wildlife
- describe the impact of personal needs, wants, beliefs and actions on wildlife and wildlife habitats
- describe career opportunities and trends in wildlife-related fields
- demonstrate basic competencies.

MODULE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: WLD1030 Outdoor Experiences 1 (Survival Skills)
Emergency First Aid (current certification)

Module Description: Students plan, prepare for and conduct an extended outdoor wilderness trip.

Module Learner Expectations: *The student will:*

- present a plan for an extended outdoor wilderness trip
- conduct and conclude, safely, an extended outdoor wilderness trip with minimal environmental impact
- demonstrate basic competencies.

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MODULE WLD2040: WILDLIFE SPACES & SPECIES

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students present the results of research on wildlife spaces and species in Alberta and other parts of the world, and compare different strategies used in wildlife management.

Module Learner Expectations: *The student will:*

- identify and compare representative ecoregions in Alberta and Canada with similar ecoregions in other parts of the world
- identify and describe threatened or endangered wildlife spaces and species in Alberta and Canada
- describe and compare local and global strategies for wildlife protection and habitat management
- demonstrate basic competencies.

MODULE WLD2060: INTERACTIONS (WILDLIFE & SOCIETY)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain how human populations interact with wildlife, and describe management strategies that enable wildlife and society to coexist.

Module Learner Expectations: *The student will:*

- describe the effects of human population growth on wildlife
- describe the effects of land use practices on wildlife
- explain management strategies that enable wildlife and society to coexist
- demonstrate basic competencies.

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MODULE WLD2070: HUNTING & GAME MANAGEMENT 2 (FIELD TECHNIQUES/REGULATIONS)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: WLD1070 Hunting & Game Management 1 (Ethics/Game Identification)

Module Description: Students demonstrate knowledge of the basic parts and safe handling of bows, arrows and firearms, and explain the legal responsibilities of the sports person.

Module Learner Expectations: *The student will:*

- demonstrate knowledge of the basic parts and safe handling of bows, arrows and firearms
- describe techniques for targeting, handling and dressing game animals in the field
- explain personal and legal responsibilities of the sports person
- demonstrate basic competencies.

MODULE WLD2090: ISSUES IN WILDLIFE 1 (RESEARCH & ANALYSIS)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students examine a range of Canadian and global wildlife issues, and present the results of research on one or more issues concerning wildlife in Canada.

Module Learner Expectations: *The student will:*

- identify a range of Canadian and global wildlife issues
- describe alternatives and consequences associated with one or more issues concerning wildlife in Canada
- demonstrate basic competencies.

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MODULE LEARNER EXPECTATIONS: ADVANCED LEVEL

MODULE WLD3020: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students explain how human populations and wildlife affect each other, describe management strategies that enable humans and wildlife to coexist, and demonstrate individual and shared actions that foster environmental stewardship.

Module Learner Expectations: *The student will:*

- describe ways in which human populations and wildlife affect each other
- describe and compare strategies used to manage wildlife spaces and species
- demonstrate commitment to environmental responsibility, through individual and shared actions
- demonstrate basic competencies.

MODULE WLD3040: WILDLIFE RESEARCH

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Module Description: Students explain applications of the wildlife research process, and conduct experimental research on a wildlife space or species.

Module Learner Expectations: *The student will:*

- identify components of the wildlife research process and their application to a sample wildlife space or species
- plan and conduct experimental research on a wildlife space or species
- demonstrate basic competencies.

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MODULE WLD3050: WILDLIFE MANAGEMENT 1 (BASIC PRINCIPLES)

Level: Advanced

Theme: Management and Conservation

Prerequisite: WLD3040 Wildlife Research

Module Description: Students describe the functions and processes of wildlife management, and identify issues that may affect the development of a wildlife management plan.

Module Learner Expectations: *The student will:*

- describe the functions of wildlife management
- identify and explain major components of a wildlife management plan
- describe alternatives and consequences associated with current issues involving wildlife management
- demonstrate basic competencies.

MODULE WLD3060: WILDLIFE MANAGEMENT 2 (APPLICATIONS)

Level: Advanced

Theme: Management and Conservation

Prerequisite: WLD3050 Wildlife Management 1 (Basic Principles)

Module Description: Students develop and present a plan for managing a wildlife space or species.

Module Learner Expectations: *The student will:*

- explain the basic principles of wildlife management
- develop and present a wildlife management plan
- demonstrate basic competencies.

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MODULE WLD3090: ISSUES IN WILDLIFE 2 (NEGOTIATION & DEBATE)

Level: Advanced

Theme: Management and Conservation

Prerequisite: WLD2090 Issues in Wildlife 1 (Research & Analysis)

Module Description: Students examine the complexity of wildlife issues affecting Alberta and the rest of the world, and demonstrate individual and shared actions that foster sustainable management of wildlife.

Module Learner Expectations: *The student will:*

- identify and compare social, economic and environmental perspectives regarding a range of current wildlife issues
- compare and contrast issues and trends involving wildlife in Canada with similar issues and trends in other parts of the world
- present a plan of action for the sustainable management of wildlife
- demonstrate basic competencies.

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